Volume 89 Number 1

STEEL

For forty-eight years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

This Week in Steel

INDUSTRY was marking time as the first half of 1931 drew to a close. The proposal of a war debt moratorium, which buoyed up drooping spirits near the end of the period, was awaiting the outcome of deliberations in Paris. Freight shippers, interested in the plea for higher rates, awaited the next move of the interstate commerce commission (Page 23) which is to act on the reply of the roads to its request for more specific information. Developments in the rumored negotiations for several mergers in the steel industry, including patching up Bethlehem-Youngstown difficulties, apparently are in a stalemate (Page 26)—inasmuch as four companies during the week disclaimed activity in the reported negotiations.

Operating Rate Yields Gently

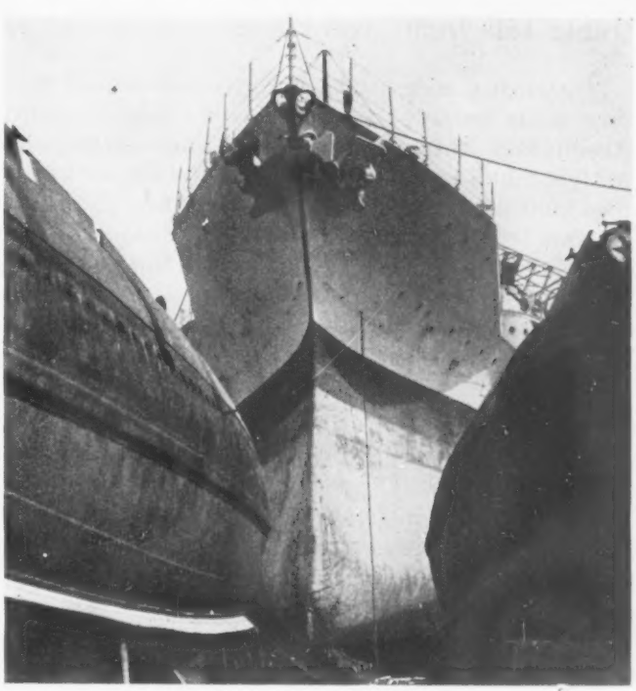
Steelmaking operations are sliding gently into the midsummer doldrums, the drop of 2 points to 34-35 per cent for the week, which includes the Fourth of July holiday, being less precipitous than anticipated. Though structural, railroad, automotive and pipe line demands are down moderately, sentiment in the trade is buoyed by the firmer belief that substantial improvement will develop late in the summer. (Page 67). . . . Prices are holding, and scrap, a barometer, shows a slightly firmer tendency in some districts.

Hoover Still Treads Softly

By accepting the finding of the tariff commission that the difference in the cost of producing pig iron at home and abroad is not sufficiently great to warrant increasing the present duty of $1.12½ per ton, the President is enabled to make another friendly international gesture. . . . British India, whose tariff commission also has been investigating the pig iron industry, likewise decides to stand pat, retaining its present rate of 12½ per cent. . . . Declaring a general revision of the tariff at this time would be a calamity, a manufacturers' association is urging greater resort to the flexible provisions of the present law, such as were invoked for pig iron. . . . These developments, within a week at Washington, indicate (Page 24) how tariff-minded the country is.

Panning Diamonds in Blue Clay of Industry

Even though they do not yield simon-pure optimism, in current statistics of industry (Page 28) there is considerable pay dirt. . . . Gray iron foundries were operating at 60 per cent of capacity in May, a third greater than steelworks. . . . Though automobile production declined in May, the month's assemblies were the largest for any month but one since June, 1930, and for the first five months of this year compare fav-



Wide World Photo

Peaceful enough—in the Philadelphia drydock—are these natural enemies. Battleship New Mexico is being modernized; the submarines being scraped

Photo, Lincoln Electric Co.

Better to be on the outside looking in. An electric welder at work on the seams of a grave vault

orably with a year ago. . . . In malleable castings, the shrinkage in production was no greater than a year ago. . . . The retreat in demand for steel plates likewise is comparable to a year ago. . . . Only in river traffic at Pittsburgh, which in May slumped to the lowest total since December, is comfort difficult to find.

Table Talk from Steel Plants

Operating men in visiting steelworks and rolling mills outside the realms of their company frequently return with ideas and suggestions which, when applied in their plants, often change the complex of cost sheets. Whether the ideas spring from the mind of the first helper on the open-hearth floor or from that of the regulator in the pulpit overlooking the mill rolls (Page 43), they break the casements around operating problems and force the bugbears to flee through mill gates.

Where Weldability Is an Asset

One reason contributing to the popularity of 18-8 chrome-nickel corrosion-resisting steel is its weldability, a feature which has proved troublesome with other so-called "stainless" steels. The 18-8 alloy can be welded readily by the oxyacetylene, electric arc or spot processes. Corrosion resistance depends upon chemical composition and structure, consequently welding procedure must be such that these properties remain unchanged. Suggestions for successful welding are to be found on Page 52. Machine tools, which are the only machines which can reproduce themselves, demand the finest of parent stock for production of improved lines (Page 61).

New Uses for Steel Elicit New Orders

New uses for steel lift the detour sign on the highway of new business. . . . Traffic lanes of steel plates are no novelty, but a span of 534 feet carrying a floor of $\frac{5}{8}$-inch plates riveted to I-beams is. This span (Page 45) is the movable portion of the new Burlington-Bristol bridge. . . . The thirteenth barge of welded cellular construction, with steel plates forming the bottom, sides and top and with longitudinal, lateral and vertical series of steel angles lap-welded together, has just been launched (Page 55) in the East. . . . And then there is P. Halen, toolmaker, of Chicago, who holds overhead and depreciation to a minimum and expedites delivery by mounting his tool shop (Page 23) on a truck and manufacturing his products on tne run.

More Punishment for Steel

Annual meeting of the American Society for Testing Materials in Chicago last week established a high-water mark for registration, with 1500 in attendance, a 50 per cent increase over attendance at the 1930 annual meeting. Symposiums accounted for much of this interest, one devoted to studies of the effect of temperature on the properties of metals including nearly 30 papers which were summarized briefly and discussed. Sentiment indicated that designers are awaiting the development of metals to withstand higher pressure and temperatures (Pages 48 and 50). Numerous committees of the society presented reports, including new specifications for a variety of materials.

New Ideas in House Building

Charles F. Kettering told a group of advertising men that the country needs new products which the people want to buy. He reminded them that new products—radio, new kinds of paint, new types of gasoline, talking pictures, etc., came out of the wartime activity in creating new ideas. The current question is "what new development is on the horizon which has promise of helping business recovery?" It is suggested (Page 34) that a revolution in house building—involving new ideas in materials, construction and financing—will change the present building industry into a new vigorous and profitable enterprise. Already the movement is under way. Its success will mean a greater outlet for steel and the substitution of machine work for certain hand labor.

Railroads Firm for 15 Per Cent; Opposition Growing

WASHINGTON—No exceptions are to be made for any commodities in the 15 per cent freight rate advance being asked for by the railroads, they have informed the interstate commerce commission in an answer filed with the commission to certain questions propounded.

The next move is up to the commission, which probably will announce shortly the date on which hearings will be held.

The answer filed with the commission states that representatives of eastern, western, southern and mountain Pacific carriers attended a meeting in Chicago June 24, and quotes from a resolution which was unanimously adopted, as follows:

"First: That a statement be filed with the interstate commerce commission . . . advising that all steam railroads in the United States are prepared, if the authority sought in the application is granted, to make effective increases of all existing freight rates and charges; of the measure proposed in the said application which proposes that the carriers be permitted to increase all freight rates and charges, including joint rail-and-water rates and charges 15 per cent, with such adjustments in the case of coal, coke and certain other commodities as will preserve existing differentials.

"Prepared to Make Increases"

"Second: That the interstate commerce commission be advised that it is not proposed to make any specific exceptions on any commodities, and that the carriers are prepared to make increases of the measure proposed in all existing rates on grain and grain products, cotton, other agricultural and horticultural products including live stock, nonferrous metals, iron and steel articles, petroleum and its products, lumber and automobiles, and in all existing class rates, in the manner stated in said statement and application; namely, that as to freight traffic generally, this increase be permitted to become effective by the use of percentage supplements; that as to coal, coke and certain other commodities, specific tariffs complying with the ordinary requirements of tariff publication be filed.

Experience has shown that where any general change in the entire rate structure of the country is authorized and becomes effective, it has subsequently been found to be necessary to make changes and readjustments, in some instances reductions, to meet competition and other situations. Such changes where found necessary will be made as promptly as possible after the proposed increased rates, if approved by the commission, become effective."

Shippers of Raw Materials Prepare for Battle

Chicago—Opposition to the proposed freight rate advance is developing from several fronts, especially from shippers and distributors of materials used in iron and steel production. Organized efforts are being mustered with respect to safeguarding some of the existing rates on coal and coke.

The feeling still exists that the advance in rates will be applicable only when traffic will bear it. Accordingly, it is understood, a number of the industrial rates will be excepted, such as petroleum and some of the agricultural products. It is feared, therefore, than the brunt of the increases must be borne by iron and steel, coal and coke.

The effect of the proposed advances on southern iron shipped into this territory will be to narrow the field to the regular users of that grade, according to the views expressed. To the Chicago delivered price on southern iron must be added 90 cents. Also, about 9 cents may be added to the Chicago district switching rate, it is stated. Thus, the delivered price of southern iron would be $18, compared with $17.50, base, furnace for northern iron. Interests marketing coke and ferroalloys in this district, which must move over long distances, are critical of the railroads' efforts to stress the long-haul rates in the proposed advances.

In the western class rate case decision, the western railroads have been granted higher rates on short hauls and lower rates on longer hauls. This, they say, will do them the most harm, as the increases are placed where, according to the railroads' viewpoint, they should be lower to enable them to compete with motor trucks.

Believe Commission Will Grant 8 to 10 Per Cent

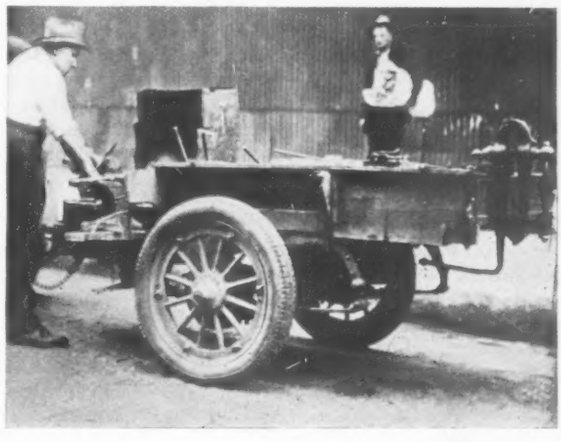
New York—Reaffirmation by railroads of their demands for a 15 per cent rate increase on all commodities has caused steel producers to focus attention on the interstate commerce commission. This latest action by the carriers came as a surprise to many in view of prior intimations from some railroad executives that there would be variations, and the assumption by the commerce commission that no increases would be initiated where traffic could not reasonably be expected to bear them.

On the other hand, this action by the railroads is strictly in line with expectations of those who could see only one thing for the railroads to do if they are to receive prompt attention; that is, to adhere to original demands and let the adjustments come afterwards. In so doing, the carriers realize they jeopardize their chances of obtaining the full increase sought, but feel they stand a show of obtaining at least a portion with reasonably quick dispatch.

Rumors are current in Wall street that an 8 to 10 per cent increase will be granted. These rumors have been fairly consistent and are credited by railroad men. They are based largely on the assumption that the commission will not grant the full increase, but is in sympathy with some measure of relief.

Pittsburgh Shippers Are Divided on Rate Increase

Pittsburgh—A tendency to await the drawing of a definite schedule of higher freight rates proposed by railroads before giving a final opinion as to the desirability of the increase is noted here, while a number of industrial leaders still are split in their



A modern Siegfried who slays the dismal dragons of depression, by name and occupation, P. Halen, toolmaker, Chicago, buys his steel, makes his tools and sells them, all in one day. Recently he visited the plant of Joseph T. Ryerson & Son, Inc., Chicago, where he obtained two 12-foot bars of 5/8-inch shafting, cut to 2-foot lengths. The 12 pieces were rapidly transformed into one dozen rim wrenches

views on the subject. An open meeting of the traffic committee of the Pittsburgh chamber of commerce was held last week to hear opinions on the petition of the carriers.

F. A. Ogden, traffic manager, Jones & Laughlin Steel Corp., urged that the petition be denied until the railroads filed with the commission an exact schedule showing what rates would be raised. A. L. Humphrey, president, Westinghouse Air Brake Co., favored a rate increase so that general business would benefit through improvement in the railroads' position. Representatives of several large companies favored rejection of the proposal.

The attitude of many is expected to be governed largely by the definite ideas of the carriers as to the new rates and their disposition of the differentials currently existing between various districts. On pig iron, for instance, valley producers have a $1.76 rate into the Pittsburgh district compared with rates of 63 cents to $1.13 for the local furnaces. An advance of 15 per cent would widen the spread between these two scales from 9 to 30 cents. The railroads have indicated, however, that existing differentials will be retained.

Decline in Living Cost Not So Sharp as in 1920

Living costs for the average wage earner are lower than at any time during the past 12 years, according to the National Industrial Conference board, New York. In 1930 as a whole the cost of living averaged 3.8 per cent lower than in 1929 and 4.2 per cent lower than in 1928. At the end of 1930 the index stood at exactly the same point as in June, 1918. In April, 1931, the downward trend still was apparent, the index being 4.8 per cent lower than in December, 1930.

"The important fact is brought out that the decline in the cost of living since the beginning of the present period of depression is not so great as many persons have been inclined to believe because of the drastic price reductions in many lines of merchandise," states the conference board.

The present decline has not been so sharp as the one following the depression that began in 1920, extending into 1921. There was a decline of 8.3 per cent in the 14 months following the stock market upheaval in October, 1929, as compared with a decline of 17.6 per cent for the 14 months beginning with the turn of events in 1920. A partial explanation of this difference is to be found in the fact that 1920 prices were greatly inflated as compared with the more stable prices of 1929. The board's indexes represent food, clothing, rents, fuel, light, and sundries.

President Continues Present Duty on Pig Iron; News from Washington

PRESIDENT HOOVER June 24 accepted the findings of the tariff commission that the present duty of $1.12½ per gross ton on pig iron should be retained, the commission's recommendation being based upon an investigation of the cost of producing foundry iron, which was instigated by request of the senate.

The cost data covered Jan. 1, 1929, to June 30, 1930. British India, which since 1926 has supplied about 50 per cent of the total imports, was found to be the chief competing country. The commission found that about 22 per cent of the total production—or 8,570,000 tons annually—is nonmerchant iron. The inference from the refusal to increase the duty is that the $1.12½ tariff adequately covers the difference between production costs at home and abroad.

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The labor department has announced that during March and April the federal government let contracts valued at more than $22,000,000.

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Ogden L. Mills, acting secretary of the treasury, expressed the belief that the moratorium on foreign debt payments suggested by President Hoover would be a very "favorable factor" in the recovery of business.

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The British Indian government has accepted the recommendation of its tariff board in favor of retention of the present import duty of 12½ per cent ad valorem on pig iron, according to Assistant Trade Commissioner Wilson C. Flake, at Calcutta.

□ □ □

Volume of industrial production showed little change between April and May, following upon increases for four consecutive months, while factory employment declined by the usual seasonal amount, according to the federal reserve board.

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The bureau of standards has a report to the effect that a standardization plan comprising 4500 different items from various industrial fields has been outlined by the standards committee of the Union of Socialist Soviet Republics.

□ □ □

During the fiscal year ended June 30, less than 100,000 immigrant aliens came into the United States, according to the department of labor. This is the first time since 1862 that under 100,000 immigrants have come to this country.

□ □ □

A wide use of the flexible provisions of the tariff law will avert any demand for general tariff revision, which would be a calamity at this time, John E. Edgerton, president of the National Association of Manufacturers, told the president.

Sheet and Tin Plate Mill Wages Reduced

Wage rates in sheet and tin plate mills having contracts with the Amalgamated Association of Iron, Steel and Tin Workers will be down 4½ per cent in July and August, due to a reduction to 2.50 cents per pound in average sales prices of Nos. 26, 27 and 28 gage black sheets in May and June. Rates will be 10½ per cent above base. This was determined at a meeting of mill and amalgamated representatives at Youngstown, O., June 30. Following is a comparison of price averages and wage changes:

May-June	2.50c	—4.5 per cent
March-April	2.65c	+1.5 per cent
Jan.-Feb., 1931	2.60c	—3 per cent
Nov.-Dec.	2.70c	—1.5 per cent
Sept.-Oct.	2.75c	unchanged
July-Aug.	2.75c	—4.5 per cent
May-June	2.90c	unchanged
March-April	2.90c	—4.5 per cent
Jan.-Feb., 1930	3.05c	unchanged
Nov.-Dec.	3.05c	unchanged
Sept.-Oct.	3.05c	unchanged
July-Aug.	3.05c	unchanged
May-June	3.05c	+1.5 per cent
March-April	3.00c	unchanged
Jan.-Feb., 1929	3.00c	unchanged

Republic Steel Heads in Conference at Youngstown

Youngstown, O.—All executives, heads of operating and sales departments of the Republic Steel Corp. have been attending a two-day conference under Chairman Tom L. Girdler at the Hotel Ohio here. There is no room large enough in the Republic company's general offices to contain the gathering, hence the adjournment to the Hotel Ohio ballroom.

Scrap Committees Named By Institute Head

President Herman D. Moskowitz of the Institute of Scrap Iron and Steel Inc. has announced appointment of the trade relations committee, which will co-operate with the federal trade commission in the enforcement of the code of business practices of the Institute of Scrap Iron and Steel Inc.,

and the traffic committee, as follows: Charles Dreifus, Pittsburgh, Pa., chairman; Charles Bock, Buffalo; Joel Claster, Reading, Pa.; John R. Briggs, Philadelphia; George B. Doane, Boston; Ben Cohen, Wilkes Barre, Pa.; Morris Speer, Cleveland; Carl R. Briggs, Blue Island, Ill.; Samuel N. Summer, Columbus, O.; Phil W. Frieder, Youngstown, O.; D. H. Cohen, St. Louis; F. S. Smith, San Francisco, Calif.; Dave L. Wilkoff, Pittsburgh; S. Tamai, Seattle, Wash.; D. Sloan Hurwitz, Buffalo; S. J. Posen, Chicago; William Wolf, Hamilton, O.; H. A. MacMullan, Philadelphia; William E. Friedman, New York; George Fisher, Canton, O.; J. J. Heggie, Boston.

The traffic committee is composed of the following: William M. Hilb, Cincinnati, O., chairman; R. M. Booher, Youngstown, O.; J. V. S. Bishop, Philadelphia; R. L. Batteiger, Philadelphia; Joseph R. Friefield, Canton, O.; Jack R. Forcheimer, St. Louis; J. A. Langan, New York; B. L. Newman, Cleveland, O.; J. Lipsitz, Chelsea, Mass.; Morton Teller, Chicago; H. Burkhart, Chicago; M. Learner, Oakland, Calif.; Harry Cohen, Chelsea, Mass.; Hyman Cohen, St. Louis; N. H. Jacobs, Buffalo; J. C. McMillan, Pittsburgh; B. M. Angell, Birmingham, Ala.; W. S. Logan, Cincinnati, O.; E. Teitelbaum, Johnstown, Pa.; O. L. Ford, Baltimore.

Michigan Adds To Taxed Ore Reserves; Itemizes Costs and Profits

OFFICIALLY, the state of Michigan has more iron ore within its borders this year than it had in 1930, though last year it shipped 11,157,480 tons. Due to further development work by the mine companies, disclosing additional ore, the taxable reserves in the state this year are 170,987,345 tons, 2,637,522 tons more than last year. Annual shipments in the past ten years have averaged about 13,000,000 tons, while the average annual reduction in reserves has been about 3,000,000 tons.

The state's taxable reserves do not include ore as yet undisclosed, or undeveloped, and also excludes deposits of low-grade material not merchantable as mined.

The current report by the state's department of conservation gives the amount of taxes paid on iron ore mined in 1930 as $3,514,532.91, equivalent to 25.95 cents per ton mined. The average number of men on payrolls in 1930 was 8554, only 442 less than in 1929 when production was near the peak. The average full-time wage per day was $4.99, and the average yearly earnings for the miners, $1436. Production averaged 5.49 tons per man per day.

The department issues a detailed statement of costs for mining and merchandising ore from underground mines. Including taxes and transportation, these costs in 1930 amounted to $3.72 per ton. The Lake Erie value is given as $4.66, and the gross ore profit, as 93.8 cents. Other costs are then set up as 30.4 cents for royalty and 3.7 cents for "interest on borrowed money."

Deducting these from the gross profit, the indicated net profit on underground ore in 1930 was 59.6 cents per ton. Even this figure, however, does not represent the actual profit, as much ore is sold at a discount below the delivered price at lower lake. The department formerly attempted to give an average for this item but lately has dropped it.

Canadian Steel and Iron Output Declines in May

Toronto, Ont.—Production of pig iron in Canada during May totaled 50,511 tons, compared with 53,792 tons in April and 80,505 tons in May, 1930. May was the first month this year to show a decline in the daily rate, which averaged 1629 tons, against 1793 tons in April. Foundry iron dropped from 7377 tons to 5372 tons, basic from 46,418 tons to 45,139 tons, no malleable iron being made in either month. For the first five months of the year the accumulative production of pig iron amounted to 243,400 tons, a decline of 37 per cent from the 385,105 tons produced in the corresponding months of last year.

The output of steel ingots and direct steel castings during May was 75,235 tons, compared with 91,461 tons in April, the daily average rate of production being 2427 tons, compared with 3049 tons, a decline of 20 per cent. Cumulative production of steel for the five months ending May was 406,272 tons, compared with 541,292 tons for the first five months of 1930, and included 382,754 tons of ingots and 23,518 tons of steel castings.

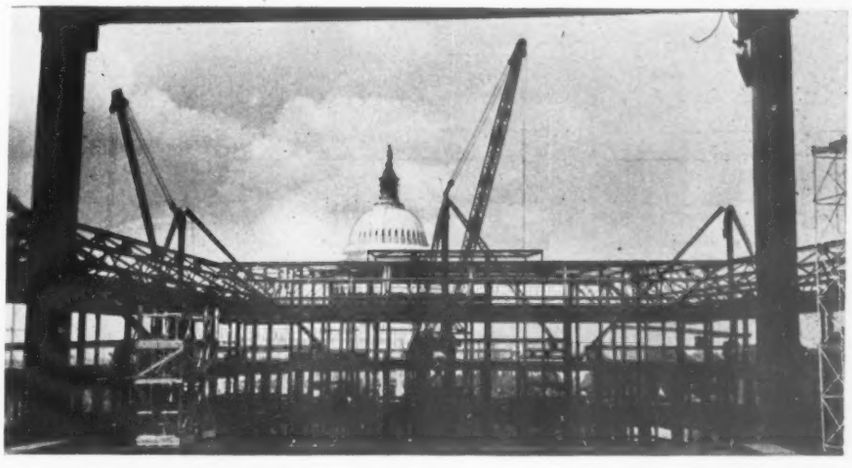
Steel Corporation Stock Gains 7117 Holders

Stockholders of the United States Steel Corp. in the three months preceding closing of books for the June dividend increased 7117, to a total of 156,239. The total at the time of the March dividend was 149,122, at the December closing 141,907 and in June, 1930, it was 129,629.

Preferred dividends were paid to 58,291 stockholders in May, compared with 60,645 in May, 1930, and 58,701 in February, this year.

Visit Cincinnati Plants

Fifty foremen and superintendents who attended the National Foremen's association's convention in Dayton, O., recently journeyed by special busses to Cincinnati, where they inspected the plant, equipment and products of the Cincinnati Milling Machine Co. and Cincinnati Grinders Inc.



Keystone Photo

THESE STEEL GIRDERS WILL HOLD CONGRESSMEN

The capitol is seen through the framework of the new $7,500,000 office building for 435 representatives to congress. The structure is one of a series included in the government's building program

Four Steel Companies Deny Merger Rumors

CLEVELAND—Steel company executives have been kept busy during the week denying merger reports. Rumors concerning three deals and involving several of the leading steel producing companies have been disclaimed in the past few days.

Knowledge that an agreement had been tentatively reached whereby the proposed merger of Bethlehem Steel Corp. and the Youngstown Sheet & Tube Co. would be concluded without further litigation was disclaimed Friday at the Bethlehem offices in New York.

The report declared that details of negotiations had not been definitely completed and that for this reason it was deemed advisable to withhold formal announcement of the peaceful outcome of the Bethlehem-Youngstown controversy.

The same day Frank Purnell, president of Youngstown Sheet & Tube Co., was quoted as denying knowledge of any reported agreement reached affecting the status of the injunction suit restraining the merger of his company with Bethlehem Steel.

Rumors that it had been decided to merge the Corrigan, McKinney Steel Co., Cleveland, with the Republic Steel Corp. were denied this week by W. G. Mather, who last year purchased controlling interest in the Corrigan, McKinney company. It also was stated that no negotiations for a merger are pending.

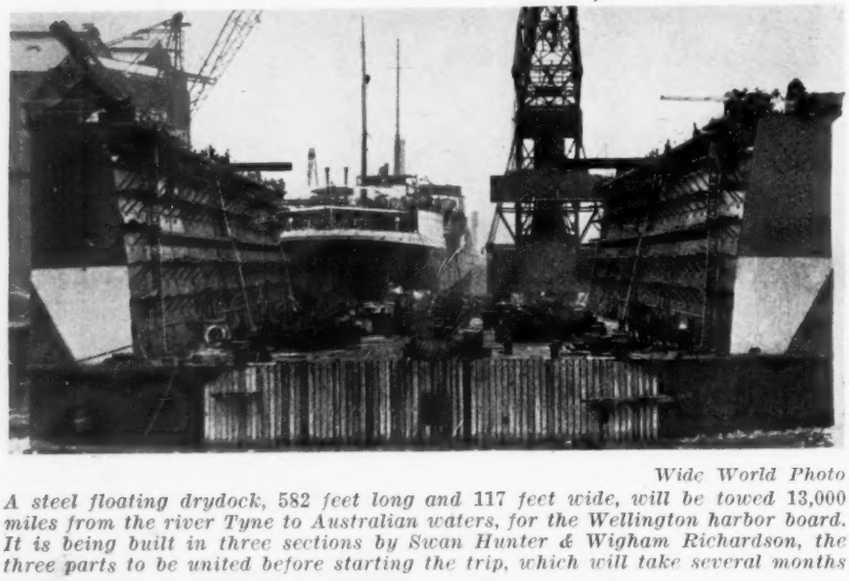
Mr. Mather and associates a few weeks ago purchased 300,000 common shares of Continental Shares Inc., until recently controlled by Cyrus S. Eaton, its chairman and organizer of the Republic corporation. Continental held in its portfolio, as of Dec. 31, 1930, 209,409 common shares of the Republic corporation. It holds 349,554 common and 508 preferred shares of Cliffs Corp., Cleveland, which owns the Cleveland Cliffs Iron Co. Mr. Mather is president of both the latter companies.

Reports previously current to the effect that the United States Steel Corp. was contemplating the acquisition of the National Steel Corp. were hit Tuesday when the offices of the latter company in Pittsburgh issued a denial that negotiations were under way "with the Steel corporation or any other steel company for sale or merger."

Regardless of whether or not any progress is being made in the Bethlehem-Republic situation, the steel industry confidently expects that the difficulties preventing the merger eventually will be adjusted.

Steel Club Has Outing

Philadephia—Approximately 200 members and guests attended the annual golf tournament and outing of the Steel club, of this city, at the Aronimink country club, June 26. The party was concluded with a dinner at which more than a score of prizes were awarded. The Steel club, founded in 1919, is a social organization, unique in the industry. S. H. Baker, local district manager, Sharon Steel Hoop Co., Sharon, Pa., is president.



Wide World Photo

A steel floating drydock, 582 feet long and 117 feet wide, will be towed 13,000 miles from the river Tyne to Australian waters, for the Wellington harbor board. It is being built in three sections by Swan Hunter & Wigham Richardson, the three parts to be united before starting the trip, which will take several months

Zinc Institute Seal Will Certify Galvanized Sheets

To indicate sheets of certified quality zinc coatings, the American Zinc Institute Inc., New York, has adopted a "Zinc Institute Seal of Quality" which manufacturers are to stencil on galvanized sheets under a license arrangement.

Every sheet produced under this arrangement will be stenciled with the seal and the weight of zinc coating, also the manufacturers own name or trademark. License arrangements now are being concluded with a number of manufacturers.

The institute has begun a program of educational work in connection with galvanized products, particularly in the rural field, and in this connection, Charles Mathews, formerly sales extension representative. fertilizer department, Anaconda Copper Mining Co., has been appointed field representative in the midwestern states.

Move to Organize Steel Branches in Construction

Philadelphia—Philadelphia Structural Steel Board of Trade has initiated a movement to organize iron and steel branches of the construction industry as a trade division of the Philadelphia federation of the construction industry. Dr. Frank Parker is executive director of the structural board.

Stresses Advertising's Role

Cincinnati — "Better Advertising Means More Business," was the topic of an address to the Cincinnati Association of Industrial Marketers by Bennett Chapple, vice president of the American Rolling Mill Co., Middletown, O.

"Advertising is playing a more important part in industry every day," he said, "and it is our responsibility to see that our work is effective. New ideas, new plans, new methods of reaching the market require greater effort today than ever before. Let's get ready for effective, constructive work for our companies in the new day of prosperity that must dawn soon."

Adopt Screen Cloth Code

Washington—Wire screen cloth interests, meeting at New York June 18 under auspices of the department of commerce, adopted a simplified practice recommendation for wire screen cloth and appointed a standing committee for the industry.

Steel Exports, Imports Show Substantial Loss in May

BOTH exports and imports of the United States in iron and steel products were lower in May than they had been in April. Exports, totaling 91,407 gross tons, were 9674 tons under the April figure, while imports at 37,176 tons, were 10,696 tons lower than in the month previous. Both May figures were the lowest recorded for any month since February of 1931, according to the iron and steel division, department of commerce.

IMPORTS AND EXPORTS
Gross Tons

	——1931——		——1930——	
	Imports	Exports	Imports	Exports
Jan.	40,781	92,745	43,624	223,766
Feb.	28,045	91,212	43,326	197,225
March	40,401	109,512	56,618	238,329
April	47,872	101,081	53,686	208,604
May	37,176	91,407	54,315	195,425
5 mo.	194,275	485,957	251,569	1,063,349
June	.....	.....	48,953	159,273
July	.....	.....	39,083	131,580
Aug.	.....	.....	35,405	150,922
Sept.	.....	.....	40,285	131,045
Oct.	.....	.....	38,344	131,845
Nov.	.....	.....	43,098	111,979
Dec.	.....	.....	40,754	101,992
Total	.....	.....	537,491	1,981,985

Despite the fairly sizeable decline registered by the May export trade there were no outstanding instances of gain or loss registered by individual classes of products. Chief reduction noted was that in black steel sheets, 5822 tons; followed by smaller reductions in the shipments of tin plate, 2669 tons; scrap, 2391 tons; and plain structural shapes, 1518 tons. Chief products in the month's trade on a tonnage basis were scrap, plain structural shapes, tin plate and galvanized steel sheets.

Shipments to the Far East and Africa increased during May, but the trade with the rest of the world was smaller. Canada took 42,970 tons of United States steel products. during May, 47 per cent of all exports in that month. Chief among the wide variety of products purchased by this consumer were scrap, 8932 tons; plain structural shapes, 6607 tons; skelp, 5752 tons; and boiler and other plate, 4645 tons.

ORIGIN OF MAY IMPORTS
Gross Tons

	Steel ingots, blooms	Steel scrap	Cast iron pipe	Steel bars
Austria	.....	.....	.....	46
Belgium	1,415	.....	138	1,284
Canada	1	1,497	.....	.....
Czecho Slovak.	.....	.....	.....	14
France	118	.....	1,554	123
Germany	2	.....	4	635
Netherlands	3	.....	.....	2
Sweden	11	.....	.....	223
Unit. King.	32	.....	.....	44
Total	1,582	1,497	1,696	2,371

IMPORTS OF IRON AND STEEL PRODUCTS
Gross Tons

Item	May 1931	April 1931	May 1930
Pig iron	10,057	14,479	14,641
Sponge iron	.....	1	
Ferromanganese, spiegeleisen (1)	1,708	2,253	4,781
Ferrochrome (2)	15	35	.....
Ferrosilicon (3)	65	77	742
Scrap	1,497	1,333	1,749
Ingots, blooms	1,582	1,904	1,117
Concrete bars	3,554	4,934	
Hollow bar, drill steel	149	142	3,101
Merch. steel bars	2,371	4,554	
Iron slabs	19	21	
Iron bars	33	88	62
Wire rods	669	655	490
Boiler, other plates	3	61	.....
Sheets, skelp	2,296	1,541	1,558
Tin plate	4	11	11
Structural shapes	6,221	6,538	
Sheet piling	123	366	19,640
Rails, fastenings	214	2,544	467
Cast pipe, fittings	1,696	1,160	342
Welded pipe	809	403	419
Other pipe	343	805	1,168
Barbed wire	606	499	283
Round wire	258	265	829
Flat wire, strip	48	62	110
Wire rope	160	209	248
Other wire	16	63	5
Hoops and bands	1,390	1,921	2,098
Rails, tacks	750	508	229
Bolts, nuts, rivets	72	46	59
Horse, mule shoes	180	.....	1
Castings, forgings	268	192	164
Total	37,176	47,872	54,315

(1) Manganese content.
(2) Chromium content.
(3) Silicon content.

DESTINATION OF MAY IRON AND STEEL EXPORTS
Gross Tons

	Galvanized steel sheets	Tin, terne plate	Black sheets	Steel bars
Argentina	96	703	503	2
Brazil	25	195	10	2
Canada	438	482	2,693	1,624
Central Amer.	456	8	20	117
Chile	67	50	13	154
China	303	624	148	110
Colombia	219	16	20	4
Cuba	284	248	4	17
Dutch E. Ind.	139	.....	.....	.....
Finland	99	.....	.....	.....
France	.....	.....	290	2
Greece	.....	156	.....	.....
Italy	.....	.....	604	1
Japan	31	675	120	14
Java	49	.....	.....	.....
Mexico	516	911	122	45
Norway	34	.....	.....	5
Panama	220	.....	.....	35
Philippines	2,573	362	.....	585
Peru	208	392	.....	18
Soviet Russia	.....	3	.....	16
Turkey	.....	.....	.....	.....
United King.	.....	.....	370	510
Uruguay	159	451	73	2
Venezuela	91	1	22	9
Total	6,053	6,129	5,082	3,282

ORIGIN OF MAY IMPORTS
Gross Tons

	Iron ore	Pig iron	Manganese	Ferromanganese
Algeria-Tunis	20,780	.....	.....	.....
Belgium	.....	100	.....	.....
Brit. India	.....	9,252	1,300	.....
Canada	.....	.....	4,914	1,202
Chile	70,590	.....	.....	.....
Germany	.....	52	2	.....
Gold Coast	.....	.....	2,339	.....
Italy	.....	.....	.....	64
Kwantung	.....	207	.....	.....
Mexico	113	.....	.....	.....
Morocco	7,820	.....	.....	.....
Netherlands	.....	187	.....	.....
Newfoundl'd	11,620	.....	.....	.....
Norway	7,174	.....	.....	.....
Philippines	3	.....	.....	.....
Sweden	.....	99	.....	.....
Soviet Russia	76,291	.....	12,736	.....
United Kingdom	.....	160	13	424
Total	194,397	10,057	21,304	1,708

EXPORTS OF IRON AND STEEL PRODUCTS
Gross Tons

Item	May 1931	April 1931	May 1930
Pig iron	812	286	1,063
Ferromanganese, spiegeleisen	1	1	1,004
Iron and steel scrap (including tin plate scrap)	13,231	15,622	41,567
Ingots, blooms	240	218	1,788
Bars, iron	104	87	188
Bars, steel	3,282	3,897	7,893
Bars, alloy steel	317	291	941
Wire rods	4,532	3,239	4,535
Boiler plate, not fabricated	5,338	5,112	8,668
Skelp	5,752	3,603	15,695
Iron sheets, galv.	426	333	865
Steel sheets, galv.	6,053	4,435	8,013
Steel sheets, black	5,082	10,904	9,921
Iron sheets, black	743	1,032	895
Hoops, bands, strip	3,006	3,148	4,611
Tin, terne plate	6,129	8,798	14,719
Shapes, not fabr.	7,548	9,066	10,123
Shapes, plates, fab.	3,284	3,800	6,370
Metal lath	228	343	411
Frames, sashes, and sheet piling	234	659	2,962
Rails	3,190	4,117	11,926
Rail fastenings	574	689	1,916
Boiler tubes	581	998	1,228
Casing, pipe, seamless and welded	4,161	2,297	7,880
Malleable screwed pipe fittings	468	487	1,115
Cast-iron screwed pipe fittings	142	261	605
Cast-iron pressure pipe and fittings	1,602	2,319	1,342
Cast-iron soil pipe and fittings	576	590	898
Welded black, galv. steel pipe	4,055	4,020	8,175
Welded black, galv. wrought pipe	554	375	1,573
Plain black or galv. wire	1,181	1,482	2,664
Barbed wire, woven-wire fencing	3,028	2,639	4,462
Wire rope	254	279	527
Insulated wire, cable	18	33	34
Other wire	345	434	634
Wire nails	585	810	623
Tacks	35	50	40
Bolts, nuts, rivets	495	576	987
Iron castings	308	464	768
Steel castings	260	189	738
Car wheels, axles	620	716	2,494
Forgings	889	717	795
Total	91,407	101,081	195,425

Auto Output Strong, Yet Yields Slightly in May

After five successive monthly gains, auto production showed the beginning of its usual summer slowing in May when 315,115 passenger cars and trucks were turned out in the United States. At that, however, with one exception May output was the best since June, 1930. Five-month totals compare favorably with 1930. Following are department of commerce figures:

	—United States—			Canada
1930	Total	Passenger cars	Trucks	Total
May	420,027	364,512	55,075	24,672
5 mo.	1,864,074	1,574,888	285,021	95,595
June	334,506	288,481	45,562	15,090
July	265,533	224,690	40,467	10,188
Aug.	224,368	185,619	38,363	9,792
Sept.	220,649	177,752	41,967	7,957
Oct.	154,401	115,476	38,343	4,541
Nov.	135,754	102,358	33,787	5,407
Dec.	155,701	122,743	31,528	5,622
Year	3,355,986	2,805,516	541,534	154,192
1931				
Jan.	171,851	137,805	33,534	6,496
Feb.	219,939	179,890	39,520	9,871
Mar.	276,341	230,835	45,096	12,993
April	335,708	285,028	50,015	17,159
May	315,115	269,080	45,695	12,738
5 mo.	1,319,016	1,102,637	213,923	59,257

Steel Plate Orders Continue Monthly Decline

Reverting to the level of last December, orders for fabricated steel plate slumped off in May and with the exception of February were at a low for 1931. Loss was chiefly to be found in oil storage tank and refinery materials' classifications. Miscellaneous class showed some gain. Department of commerce tabulation follows:

In Tons

1930	Total	Oil storage tanks	Blast furnaces	Miscellaneous
May	38,328	10,495	426	16,479
5 mo.	221,664	49,043	7,935	89,320
June	41,774	9,869	511	20,698
July	38,283	11,969	102	17,752
Aug.	36,513	10,056	750	21,910
Sept.	41,066	14,916	514	18,301
Oct.	30,197	4,518	231	18,665
Nov.	33,151	9,965	179	14,632
Dec.	26,787	5,118	135	13,227
Year	469,435	115,454	10,357	214,505
1931				
Jan.	27,518	2,598	111	20,845
Feb.	24,438	3,585	75	16,245
Mar.	31,056	2,538	833	21,697
April	29,916	7,749	25	17,783
May	26.165	2,411	230	20,387
5 mo.	139,093	18,881	1,274	96,957

May's Boiler Orders Off

Steel boiler orders totaled 646 units in May and were down slightly from April's 689. Total for May had an area of 572,681 square feet, against 825,203 square feet included in April's commitments.

For the first five months of 1931, 3079 steel boilers have been ordered; for the corresponding 1930 period 5092 had been ordered. Figures are by the department of commerce from reports of 73 manufacturers comprising most of the leading establishments of the industry.

Steel Castings Down for Third Successive Month

Production of commercial steel castings, at only 29.6 per cent capacity in May, slumped off to not only the low for 1931 but the low of any month in 1930. Bookings were likewise affected and orders received were only at 26.8 per cent of rated capacity. Department of commerce reports follow:

1930	Total bookings tons	Per cent of capacity	Total production tons	Per cent of capacity
May	91,077	63.1	104,984	72.8
5 mo.	522,445	72.4	545,776	75.6
June	61,164	42.4	90,795	62.9
July	57,850	40.1	78,977	54.7
Aug.	50,370	34.9	64,303	44.6
Sept.	49,542	34.3	61,919	42.9
Oct.	45,552	31.6	59,522	41.2
Nov.	48,123	33.3	44,290	30.7
Dec.	49,387	34.2	46,290	32.1
Year	884,433	51.1	991,872	57.3
1931				
Jan.	46,810	32.1	46,294	31.8
Feb.	40,292	27.7	49,520	34.0
March	48,159	33.1	56,730	39.0
April*	46,007	31.6	48,250	33.1
May**	39,044	26.8	43,141	29.6
5 mo.	220,312	30.3	243,935	33.5

*Revised. **Preliminary.

May Shows Recession in Malleable Casting Output

With a decline in percentage of operations in the malleable castings industry to 32.1 per cent in May, tonnage output was off from the 1931 high set in April. Shipments were fairly steady though a decline in new bookings forecasts lower operations in immediate months to come. Department of commerce figures follow:

1930	Output, tons	Shipments, tons	Orders booked, tons	Per cent operated
May	53,502	55,656	47,022	53.8
5 mo.	306,273	299,486	282,177	62.1
June	39,347	43,937	33,865	40.3
July	30,911	32,656	30,068	31.0
Aug.	25,614	31,845	25,409	26.2
Sept.	26,528	29,223	26,251	27.2
Oct.	28,785	29,206	24,171	29.0
Nov.	27,114	25,974	27,451	27.8
Dec.	30,431	27,474	26,433	31.1
Yr.	515,003	519,801	475,925	43.6
1931				
Jan.	31,267	31,536	32,676	31.5
Feb.	33,587	32,663	32,566	34.4
March	35,210	36,677	34,331	35.9
April*	36,076	37,693	36,086	36.3
May**	31,344	36,686	28,208	32.1
5 mo.	167,344	175,255	163,867	34.0

*Revised. **Preliminary.

Steel Barrel Output Rises for Fifth Month

At the highest since October, 1930, steel barrel output reached the total of 610,788 units in May. Shipments were correspondingly high. Thirty-two plants report the following to the department of commerce:

1930	Production	Shipments	Unfilled orders within 30 days
May	731,087	736,147	393,843
5 mo.	3,527,307	3,531,159	.....
June	651,559	638,358	319,754
July	617,420	621,091	311,630
Aug.	553,842	552,265	237,745
Sept.	564,927	565,204	253,745
Oct.	616,121	619,558	275,778
Nov.	497,539	500,409	230,960
Dec.	412,283	406,327	188,902
Year	7,440,998	7,434,371	.....
1931			
Jan.	421,814	427,622	210,416
Feb.	450,134	449,485	231,738
March	550,583	554,332	242,626
April	591,399	600,566	253,622
May	610,788	618,801	248,138
5 mo.	2,624,718	2,650,806	.....

*Revised.

Gray Iron Foundry Output Gains Encouragingly

Output of gray iron foundries increased over two points in May to the highest mark for 1931. Production was at 60.7 per cent of normal, the latter being average monthly production over the past three years. Output figures are representative of 159 foundries reporting to the Gray Iron institute, Cleveland.

However, new business fell off 9.7 points to 51.2 per cent; likewise did unfilled orders reverse the output trend and at 39 per cent were off 4.7 points.

Foundry Activity Off

For the third straight month, output of castings declined among the ten members of the Worcester, Mass., foundry council. May's total, at 1,567,688 pounds, is beneath the low of 1930. Monthly tabulations follow:

1930	In Pounds
May	3,261,695
5 mo.	15,409,414
June	2,675,042
July	2,068,084
August	1,879,655
September	2,117,590
October	2,299,494
November	1,738,667
December	1,780,279
Year	29,966,225
1931	
January	1,843,791
February	2,047,888
March	1,856,090
April	1,778,501
May	1,567,688
5 mo.	9,093,958

Industrial Men in the Day's News

Robert H. Ripley, Chairman and President, General Steel Castings Corp.

PRACTICING law for about a year in Chicago, he began his career in steel castings and railway equipment about 30 years ago.

HE early became associated in American Steel Foundries and various subsidiary interests with Robert P. Lamont, now United States secretary of commerce.

WHEN Mr. Lamont resigned to take up governmental service, he succeeded him as president, General Steel Castings, and now also becomes its chairman.

MADE chairman of the board and re-elected to the presidency of General Steel Castings Corp., Eddystone, Pa., as noted in STEEL of May 28, Robert H. Ripley has been identified with the steel castings and steel railway equipment industries his entire business career of more than 30 years with the exception of about one year. In that interval he practiced law in Chicago following his graduation from Cornell university in 1889 with an L.L.B. degree. He was born at Boston, June 6, 1876, and prior to entering Cornell, attended Shattuck Scientific school, Fairbault, Minn.

During his practice of law in Chicago he was brought into contact with an intimate friend in the National Railway Spring Co., Oswego, Chicago, then encountering some difficulties. Mr. Ripley decided to render what assistance he could for about a year and then return to his first love, the law. He never has done that, however, but has always found his legal training of great aid. Concerning this "sidetracking" he says: "A good lawyer may have been spoiled to make an indifferent salesman and manufacturer and I should like to think this were the case."

In the railroad industry Mr. Ripley did not find himself entirely among strangers for his father,, for a great many years, rendered distinguished service as president of the Atchison, Topeka & Santa Fe railroad in Chicago.

After a 2-year affiliation with National Railway Spring Co., Mr. Ripley became a part of the Simplex Railway Appliance Co., organization, remaining from 1902 until 1905 when the latter company became a part of American Steel Foundries. Associated with Mr. Ripley in the Simplex Railway Appliance Co., and afterward in American Steel Foundries, were Robert P. Lamont, for many years president of American Steel Foundries and now secretary of commerce of the United States, and George E. Scott, now president of American Steel Foundries.

Mr. Ripley has been a vice president of American Steel Foundries since 1905 and, for the past two years, the company's senior vice president. When Mr. Lamont resigned from his various industrial activities early in 1929, prior to becoming secretary of commerce, Mr. Ripley succeeded him as president of General Steel Castings Corp., and has since held that position. In addition he is chairman of the board, to which office he was elected at the corporation's recent annual meeting.

Mr. Ripley's record of achievement is an excellent testimonial to both his energy and ability. He is a strong believer in the future of the railroad industry as an important link in our further industrial progress and feels that every reasonable influence should be used to foster the fair treatment and prosperity of that industry.

RANDOLPH W. SHANNON has been appointed manager of sales in the Philadelphia district for American Sheet & Tin Plate Co., Pittsburgh. He succeeds Thomas W. Simpers, retired. Mr. Shannon attended Princeton university and following service in the war joined the American Sheet & Tin Plate Co. Since 1921 he has been connected with the Detroit and New York sales offices.

Mr. Simpers who has retired as Philadelphia manager of sales for the American company, under the United States Steel Corp. pension plan, has represented it there since 1900. He was first employed in 1882 by McCullough Iron Co., one of the first producers of galvanized sheets in this county. He remained with the McCullough company until 1888, and then became associated with Standard Iron & Steel Co., which in 1900 was partitioned among American Sheet Steel Co., American Tin Plate Co., and the National Steel Co.

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John U. Anderson, who resigned recently as treasurer of Republic Steel Corp., Youngstown, O., became president of the Union Savings & Trust Co., Warren, O., June 30. He was chosen president to succeed W. Manning Kerr, who was made vice chairman of the board. Mr. Kerr also is president and treasurer of Ohio Corrugating Co.

Mr. Anderson became connected

with Trumbull Steel Co. under Jonathan Warner in 1914, later being secretary and treasurer of the Trumbull company. When Republic Iron & Steel Co. absorbed Trumbull he was named treasurer of the Republic company, continuing in that office when the Republic Steel Corp. was formed last April.

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C. K. Quier has been promoted to succeed the late J. L. Garis as office manager of Reading Screw Co., Norristown, Pa.

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W. W. Coleman, president of Bucyrus-Erie Co., South Milwaukee, Wis., has returned from a European trip of several months.

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Alvin M. Karstensen, formerly Pacific Coast representative, Truscon Steel Co., Youngstown, O., now is Pacific district manager for Campbell Industrial Window Co., New York.

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William Conibear, Ishpeming, Mich., in charge of safety work in the mines of Cleveland-Cliffs Iron Co., Cleveland, has been promoted to assistant superintendent.

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Joseph Eshelman, Webb-Crawford building, Birmingham, Ala., has been appointed representative in eastern Tennessee for Northern Equipment Co., Erie, Pa., in the sale of boiler plant equipment.

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Arthur D. Fiske, traffic manager of the Worcester, Mass., district for American Steel & Wire Co., Cleveland, retired July 1 after 47 years with the American company. Robert H. Haley, his assistant, succeeds him.

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David Geissinger, who has been direct factory representative in Pittsburgh for several machine tool manufacturers, is now affiliated with Fort Pitt Steel Casting Co., McKeesport, Pa., as special representative.

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Dr. G. L. Kelley, scientist, Harvard university, has been appointed to supervise research work in the manufacture of pressed steel coaches at the Pressed Steel Co. of Great Britain, London, England.

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C. B. Pollock, for several years vice president in charge of operations of Newton Steel Co., Newton Falls, O., and Monroe, Mich., now is general superintendent of the Toronto, O., plant of Follansbee Bros Co., Pittsburgh.

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C. G. Bacon, director of wheel research, Armco Railroad Sales Co., Middletown, O., has resigned but is being retained by the company in a consulting capacity in connection with wrought steel wheels.

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R. E. Ratcliffe, who has been representing American Wire Fabrics Corp. and Wickwire Spencer Sales Corp., in the Texas district, has been transferred to the district office at Tulsa, Okla., to succeed Lawrence J. Baldwin, resigned.

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F. H. Rich, for the past four years assistant treasurer of Perkins Machine & Gear Co., West Springfield, Mass., now is general manager of production control and sales.

S. F. Cushman Jr., works manager, has been placed in charge of sales promotion and advertising.

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Fred J. Griffiths, president, Republic Research Corp., Massillon, O., since April, 1930, has been made a director of Eaton Axle & Spring Co., Cleveland. He formerly was chairman of Central Alloy Steel Corp., Massillon, now a part of Republic Steel Corp., Youngstown, O., of which Republic Research Corp., also is an affiliate.

Frank O. Clements

Technical director, research laboratories, General Motors Corp., Detroit, who was elected president of American Society for Testing Materials at its annual meeting in Chicago last week.

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Robert Dougan, formerly connected with Gulf Concrete Pipe Co., Houston, Tex., has been made manager of the structural products department in the Tulsa, Okla., district, Wickwire Spencer Sales Corp., subsidiary of Wickwire Spencer Steel Co., New York. He succeeds J. M. Mercer, who resigned recently to enter business in California as a member of the Curtis Whitney Steel Co.

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Bert R. Reeves, identified for five years with Industrial Brownhoist Corp., Bay City, Mich., and more recently with Ohio Steel Foundry Co., when it took over the Bay City plant, has become affiliated with the alloy steel foundry of Babcock & Wilcox Co., Barberton, O. Prior to going with Brownhoist company, Mr. Reeves was steel foundry superintendent, Neal Lucey Co., Houston, Tex.

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John M. Robb Jr., for the past 12 years associated with Park & Williams Inc., Philadelphia pig iron merchant, now is affiliated with the Philadelphia offices of Hickman, Williams & Co. Inc., seller of pig iron and coke, South Fifteenth and Walnut streets.

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G. A. Tomlinson, prominent in Great Lakes shipping circles, capitalist and banker of Cleveland, on June 24 was elected chairman of the American Ship Building Co., Cleveland, to fill a position vacant since 1915. Mr. Tomlinson has been a director of American Ship for a number of years. He is president of Cleveland & Buffalo Transit Co., vice president of Great Lakes Towing Co., and director of Midland bank, Cleveland.

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William H. Waltz has resigned as steel casting contact engineer, Bethlehem Steel Co., South Bethlehem, Pa., to become superintendent, Crucible Steel Castings Co., Cleveland. When he was graduated in 1922 from Lehigh university, he took Bethlehem Steel Co.'s special course and that year entered its steel foundry as helper and utility man. In 1923 he was made foreman in charge of metal, in 1928 was promoted to assistant steel foundry superintendent, and in 1930 was made steel casting contact engineer.

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George D. Buckwell, manager of pig iron sales for the Davison Coke & Iron Co., Pittsburgh, since August, 1928, has resigned and is taking a 3-month European trip before resuming other business activities. He has been succeeded by W. S. Scott, connected with the Davison company in pig iron sales work since May, 1929. Mr. Scott formerly was identified with the Reliance Coke & Furnace Co., Pittsburgh, whose Claire furnace was taken over by the Davison Coke & Iron Co. two years ago. Prior to his Davison connection Mr. Buckwell had charge of the Pittsburgh office of the M. A. Hanna Co., Cleveland, for eight years.

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Albion Bindley became purchasing agent July 1 for Pittsburgh Steel Co., Pittsburgh, and subsidiaries, in succession to Robert McMillan, resigned. Mr. Bindley has been with those affiliated interests for about 20 years. He began his early experience in the company's Monessen, Pa., works and was assistant superintendent of the tube mill there when he entered the United States army in 1917. After the war he was identified for a time with the Pittsburgh sales office of Pittsburgh Steel Products Co. In 1923 he went with Neely Nut & Bolt Co., Pittsburgh, as vice president and secretary where he remained until November, 1930. He has been a

director of the Pittsburgh Steel Co. since 1925.

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E. A. Thumbert, who recently was connected with the Palmer-Bee Co., Detroit, as special sales engineer in charge of design and sale of skip hoists and ash hoppers, has become affiliated with Fairfield Engineering Co., Marion, O. He will specialize in the design and sale of skip hoists for coal and ashes, ash hoppers, gates.

Mr. Thumbert has specialized in skip hoist engineering and sales work for the past 20 years. He was connected with the Beaumont Co. for 16 years, and for several years was secretary and general manager. He next went with Palmer-Bee Co.

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J. M. Hipple, East Pittsburgh, Pa., works manager, Westinghouse Electric & Mfg. Co. since 1927, has been appointed general works manager for the company. He has been succeeded by S. H. Champlain, manager of the Sharon, Pa., works of the Westinghouse company for the past eight years. M. L. Fawcett succeeds Mr. Champlain at Sharon.

A. B. Reynders, works manager at East Springfield, Mass., Westinghouse Electric & Mfg. Co., will have supervision over Mansfield, O., works, with E. M. Olin, works manager at Mansfield reporting to him.

J. E. Barkle, works manager at South Philadelphia, Pa., will have supervision over Newark, N. J., works, with H. E. Miller, works manager at Newark, reporting to him.

G. L. Harris has been appointed manager of office systems, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. He has had many years experience in that line, latterly for three years as manager of office systems, Philadelphia Electric Co., Philadelphia.

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John E. Garrity has been appointed Pacific coast representative for Superior Steel Corp., Pittsburgh, with headquarters in Los Angeles. Mr. Garrity for a number of years was general manager of sales, West Leechburg Steel Co., Pittsburgh, but resigned that position last year.

H. L. Brown has been appointed district representative for Superior Steel Corp., Pittsburgh, with headquarters at 2001 Carew Tower, Cincinnati, effective July 1. Mr. Brown has been a resident of Cincinnati for the past 31 years and was president and treasurer of a wire fence manufacturing company for a number of years. He enlisted in the army shortly after war was declared and was made executive assistant in charge of production of all ordnance equipment ammunition. Since January, 1919, he has been associated with Dean Higgins & Co. as vice president and manager of sales of the southern Ohio district, handling products of West Leechburg Steel Co., Pittsburgh, and Baltimore Tube Co., Baltimore.

Obituaries

WALTER JENKS, 73 who retired last year as general manager, bar and hoop department, Carnegie Steel Co., Pittsburgh, after holding that position since 1901, died June 25 at Pittsburgh. Born in Wolverhampton, England, he came to America in 1880 and worked as a roller in the hoop mill of William Clark Sons Co., Pittsburgh, until he went to Watson & Co., Pomeroy, O., where he remained until 1885. For the next 15 years he was with the La Belle Steel Works in Allegheny, Pa., where he served as roller and superintendent, then became general superintendent of the Crucible Steel Co. of America, Pittsburgh. He was later made general manager, American Steel Hoop Co., and when the firm was absorbed by United States Steel Corp. and placed under the management of Carnegie Steel Co. he was retained as general manager of the bar and hoop department.

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Seth A. Leonard, 76, president and treasurer of Leonard Electric Mfg. Co., Cleveland, died June 27.

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Edward P. Browning, founder of the Ohio Valley Pulley Works, Marysville, Ky., an international concern from which he retired in 1923, died June 24.

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Thomas A. Brown Jr., vice president and treasurer of Eagle-Picher Lead Co., Chicago, from 1916 to 1925 when he retired, died June 26.

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Will F. Lewis, 64, for the past 23 years superintendent of roll design, Duquesne works, Carnegie Steel Co., Pittsburgh, died at Pittsburgh, June 23. Mr. Lewis previously was connected with Mackintosh-Hemphill Co., Pittsburgh, and Cambria Steel Co., Johnstown, Pa.

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Sir Hugh Bell, chairman of Channel Steel Co. Ltd., and Horden Collieries Ltd., chairman and managing director of Bell Bros. Ltd., and director in numerous other British enterprises, died June 28 at London, England.

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Finley F. Harman, president, Cleveland Metal Treating Co., Cleveland, died June 28. Born in Marion county, O., he spent his early life in Van Wert and Ashland, O., locating in Cleveland in 1899. Since then he has been active in the steel treating industry, being especially energetic in efforts of the American Society for Steel Treating.

□ □ □

Walter E. Coffin, mechanical expert associated with National Malleable & Steel Castings Co., Cleveland, since 1896, died June 25 at Cleveland Heights, O. Born in Indiana, he served the Texas & Pacific railway for ten years and then located in Cleveland. He was well known as an inventor of railroad devices.

□ □ □

Arthur Church, 72, secretary of Baldwin Locomotive Works, Eddystone, Pa., died in Philadelphia, June 26. Born in that city, he was graduated from the University of Pennsylvania in 1878 with a degree of bachelor of science. After several years in engineering work he became associated in 1886 with Baldwin company.

□ □ □

F. G. Kretschmer, 70, who in 1893 established the New York office of Brown & Sharpe Mfg. Co., Providence, R. I., following his service with Krupp Works of Germany, at the Columbian exposition, died June 15 at Frankfurt, Germany. In 1905 he established a sales office in Frankfort, representing several American companies until his death.

□ □ □

Frank N. Nutt, formerly chief engineer of the Haynes-Apperson Co., Kokomo, Ind., pioneer automobile manufacturer, died June 24 at Rochester, Minn., Mr. Nutt joined the Haynes company in 1899 as superintendent of motor manufacture and from 1910 to 1925 was chief engineer. He then went to Flint, Mich., as research engineer of the AC Spark Plug Co., division of General Motors Corp.

□ □ □

Charles Trezona, 68, Ely, Minn., general superintendent since 1902 of the Vermilion range mines of Oliver Iron Mining Co., Duluth, died June 21. After some copper and iron mining experience Mr. Trezona in 1898 became mine captain at Pioneer mine on the Vermilion range. Appointed superintendent of Pioneer mine in 1900 he two years later became general superintendent of the Oliver properties on the Vermilion range.

□ □ □

William L. Saunders, 74, chairman, Ingersoll-Rand Co., New York, died June 26 at Teneriffe, Canary Islands, while on a world cruise. He was an inventor of numerous engineering devices. He began his engineering career with National Storage Co., Communipaw, N. J. He later became engineer, vice president and president in turn, of Ingersoll-Sergeant Drill Co., and president of Haesler Tool Co. and New York Imperial Tool Co. When Ingersoll-Sergeant Co. was succeeded by Ingersoll-Rand Co. he became president and later chairman. In 1915 he was appointed chairman of the naval consulting board.

Here and There in Industry

RAHN-LARMON CO., Cincinnati, manufacturer of lathes, has passed to the sole ownership of Ferd T. Nebel, who has been president and general manager since the death of A. J. Larmon, former owner, 18 months ago. The business, which was incorporated in 1899, will be continued under the former name. Mr. Nebel is president and treasurer, C. K. Nebel vice president and Oliver M. Dock secretary. These officers form the board of directors with Horace M. Todd and M. L. Alexander.

□ □ □

Cement Gun Construction Co., 537 South Dearborn street, Chicago, has moved its New York office to 1169 Woolworth building.

□ □ □

Fort Pitt Flask and Equipment Co., Pittsburgh, has been incorporated with C. H. Curry, president, H. J. Koch, vice president and C. S. Koch, treasurer.

□ □ □

Superior Alloys, Ltd., Sault Ste. Marie, Ont., is resuming operations after being closed for two months. Orders for five weeks are in hand and prospects are for longer operation.

□ □ □

C. W. Poe Co., 7600 Carnegie avenue, Cleveland, is putting on the market an insulating cement for use where heat is to be conserved by insulation. The company is headed by C. W. Poe, who has represented other interests at Cleveland.

□ □ □

DeVilbiss Co., Toledo, O., has changed the location of two of its sales and service branches. The office at St. Louis has been moved from 1903 to 1937 Washington avenue and that in New York from 25 West Forty-third street to 25 West Forty-fifth street.

□ □ □

Fusion Welding Corp., Chicago, has appointed the Puritan Compressed Gas Corp., 2012 Grand avenue, Kansas City, Mo., distributor of its line of welding rods for Kansas and western portions of Missouri. This company until recently was known as the Kansas City Oxygen Gas Co.

□ □ □

Union Chain & Mfg. Co., Sandusky, O., has appointed Industrial Gear & Machine Works, 225 Sixth avenue, Oakland, Calif., exclusive distributor for its line of industrial chain products in that territory. The complete line of silent and roller chains, slow-speed power transmissions, conveying and elevating chains will be carried in stock. W. I. Brown and P. E. Haultain will be in charge.

□ □ □

John T. Hepburn Co., Toronto, Ont., has built a 30-ton traveling gantry crane, one of the largest ever built in Canada, for use in the power development work at Chats Falls on the Ottawa river by the Ontario hydroelectric commission and the Ottawa Valley Power Co.

□ □ □

Mechanics' Universal Joint Co., the Rockford, Ill., division of Borg-Warner Corp., Chicago, notes that May business has made a slight increase over April, it is announced by C. S. Davis, president of the parent corporation. This makes a complete record of monthly gains since January.

□ □ □

City Machine & Tool Co. and City Auto Stamping Co., both of Toledo, O., have completed their merger, stockholders of both approving the plan. The name of the latter will be retained. Amos Lint is president, R. D. Mills vice president and treasurer, Leroy Eastman secretary and George Smith assistant secretary.

□ □ □

Empire Steel Corp., Mansfield, O., will be continued in operation under direction of the receiver, Carl H. Henkel, by order of the federal court. A meeting has been set for July 10 before the court, participated in by creditors, bondholders and others interested, for general discussion of affairs of the receivership, including the possibility of issuing receiver's certificates, if necessary.

□ □ □

Metal Forms Corp., Milwaukee, maker of forms for pouring concrete, reports business 20 per cent ahead of a year ago, which made a gain of 30 per cent over 1929. The plant has been working 55 hours a week with a payroll of 50 for more than three years and orders are such that the schedule probably can be maintained indefinitely, according to Roy M. Moss, secretary.

□ □ □

Canada Wire & Cable Co. has begun operation at Montreal East, Canada, of the hot copper rod mill built by the United Engineering & Foundry Co. This mill, which will roll all types of copper rods, contains many new developments designed to facilitate production and render possible operating economies. United Engineering built the mill in record time, the order having been placed in October, 1930.

□ □ □

Badger-Packard Machinery Co., Milwaukee, one of the oldest dealers in metal and woodworking machinery in the middle west, is liquidating its business under the direction of Henry W. Gottschalk, Milwaukee attorney, who recently was appointed trustee. An auction sale of the entire assets, including 300 metalworking and 75 woodworking machines, was held June 29 and 30 by Michael Tauber & Co., auctioneers, 411-423 South Market street, Chicago.

□ □ □

Beardsley & Piper Co., 2541 North Keeler avenue, Chicago, manufacturer of sand handling, conveying and molding equipment and systems, has established a department for engineering, developing and marketing pulverized fuel systems for foundries and the industrial field. Aubrey J. Grindle will have full charge of this new department. This service will include every phase of pulverized fuel installation, from engineering to the completed and installed unit for furnaces, boilers and heating equipment.

□ □ □

Porcelain Enamel institute, 612 North Michigan avenue, Chicago, has added to its activities a manufacturers' technical consultation service for the benefit of manufacturers desiring to determine whether porcelain enamel is adapted as a finish on their products. The new service is offered in response to frequent demand for advice in this respect. Advice will cover methods of application and proper equipment for an enameling plant. Suggestion also will be made whether it is advisable to do enameling in the plant of the manufacturer.

May Crane Shipments Down But Dollar Value Up

New York—Shipments, new orders and unfilled bookings of overhead cranes declined in May as compared with the previous month, according to the Overhead Electric Crane institute. Analysis of new orders, however, indicates that heavier equipment was placed, which accounts for an increase in dollar value. May shipments totaled 32 units with a tonnage capacity of 614, valued at $309,664.43. This compares with 42 units with tonnage capacity of 1139, valued at $415,987.47 in April.

New orders dropped to 19 units, against 27 the previous month, but with a tonnage capacity of 779 against 618 in April. New orders in May were valued at $306,849, compared with $273,573.05 in April. Unfilled orders on June 1 totaled 81 units, with tonnage capacity of 3217, valued at $1,412,987. This compared with 95 units with tonnage capacity of 3082, valued at $1,420,427.05, on the first of May.

MIRRORS of MOTORDOM

DETROIT

CONTINUING the decline of the past three weeks, automobile production eased off to a 60,700-unit total in the last week of June.

Thus for the four weeks and two extra working days of the month, the figure of 275,000 assemblies, predicted in these columns, has in effect constituted June's output.

After May had carried unbroken weeks of 75,000 units, June opened by dropping to the approximate 65,000-auto weekly mark. The last two weeks, however, saw a leveling off, first to 62,700, and now off another peg to 60,700 units.

On this basis, July opens inauspiciously, at least as far as any uptrend is discernable. For many producers July schedules have not as yet been formulated. The automobile producers' cautious forward movement keeps in harmony with retail purchases.

Plymouth in Lone Gain

Conspicuous because of its gain alone as June closed is Plymouth, which made more than 400 more cars this week than last, totaled 3100 cars for the week, and is stocking dealers preparatory to announcements of its new line on July 6.

But more than countering this lone upthrust are weekly recessions from assembly lines of Ford, Dodge, Oakland-Pontiac and Hupp. Ford went down approximately 2 per cent for the week to 17,500 assemblies, averaging 5800 daily; Dodge production is irregular; Packard is down 20 per cent this week and is back to assembling 80 a day, 4 days of its new series; Oakland-Pontiac is off 600 units for the week to 2130 total assembly; and Hupp has displayed a minor scaling.

Unvarying schedules hold for the balance. Chevrolet is turning out 4000 units a day, all departments on 5 days. Buick is still at 4 days, 425 a day. Olds at 250 units, 4 days, is steady. Cadillac-LaSalle combined output is maintained at 85 units, 4 days.

Chrysler is without noticeable change at 2000 units a week and its subsidiary DeSoto made 800 cars, likewise for a constant total.

Reo, making more truck than passenger cars, is at 100 units, 5 days; Studebaker is still on the basis of 300 assemblies, 5 days; Nash with a fairly large unfilled order file, is producing around 400 cars daily, 5½ days; Hudson-Essex works but two days a week, 375 units; and Auburn-Cord holds at 200 daily, 5 days.

Designers Stress Ease

Comfort was the keynote of the recent summer meeting of the Society of Automotive Engineers at White Sulphur Springs, W. Va., and promises to elbow mechanical improvements and operating economies out of the limelight at the 1932 automobile shows.

The appeal of the new series Packard is more luxurious riding qualities, abetted by shock absorber control, lower center of gravity and more generous rubber cushioning—to cite only three refinements.

Likewise, in the new four-cylinder model which Plymouth is introducing, the spring suspension of the motor is primarily an aid to create comfort. A majority of recent changes in Ford's Model A have been body refinements, and in the new series one of the most important changes will be a longer wheelbase.

A group at Detroit has been experimenting with a radical—almost a fantastic—design, motivated entirely by comfort. Certain innovations, otherwise impossible, are deemed practicable because automobiles usually are viewed from the rear, both by pedestrians and other motorists, and only one side of a car is visible at a time.

This viewpoint overcomes the objection to making the doors on the curb side wider than those on the other, facilitating ingress and egress. Few motorists have failed to notice that crossing railroad tracks at an angle, taking the obstruction at different times by all wheels, is smoother, hence the rear wheels are to be mounted separately and out of line.

This staggering of the rear wheels necessitates mounting the motor forward, with front-wheel drive. This makes a lower center of gravity and with the motor and transmission forward and thoroughly insulated from the body, there will be a minimum of mechanical reminder to the occupants. It is not stated that such a car is ready for the market, but some preliminary planning has been done.

Air conditioned bodies, enabling windows to be raised summer as well as winter, permitting an even distribution of cooled air in summer and heated air in winter, with dust and dirt barred, may not be far distant. Following the application of this principle to buildings the Baltimore & Ohio railroad a few weeks ago put air-conditioned equipment on a passenger run between New York and Washington.

Large Contracts Placed

Streamlining of bodies—engineers term them "tear drop" bodies—to cut down air resistance offers possibilities for radical departures in interior trim. The new hookup of Fisher Body with the Libby-Owens-Ford Glass Co. undoubtedly is a step toward the use of improved, safer glass in General Motor bodies.

The recent order that Mullins Mfg. Co., Salem, O., received, reputed to be in the neighborhood of $1,250,000, was from Hupmobile and Studebaker for body stampings.

(Mirrors of Motordom will next appear in the issue of July 9.)

EDITORIAL

New Ideas Will Help Business Recovery

IT HAS been said that what this country needs to help speed business recovery is a new industry or new products. Advocates of this idea recall the manner in which the thriving automobile industry saved the country on more than one occasion from what might have been a serious dull period. Charles F. Kettering, vice president in charge of research, General Motors Corp., speaking recently before the members of the American Federation of Advertising, again voiced this belief.

"Business will come back," he said, "when we get some products that people want to buy and I believe that if one-tenth of the energy were spent in getting products people want to buy instead of stirring up the mud we would get along a lot better."

Referring to the war period, Mr. Kettering reminded his listeners that "everybody sat up and worked days and nights and Sundays. . . . But out of that there came an enormous number of developments: the radio, talking pictures, new methods of paints, new types of gasolines and a thousand and one other things. Business picked those up, and we started to make a variety of products which people wanted to buy."

Influence of Wartime Ideas Speeded Recovery from 1921 Depths

It is certain that new products such as those enumerated by Mr. Kettering assisted materially in lifting the United States out of the 1921 depression. In fact the impetus of new discoveries, of the application of new methods and of improved ideas in finance and merchandising—all outgrowths of the feverish activity of the war period—was felt for at least a decade after the armistice was signed and helped to support business at high levels.

But now the beneficient influence of wartime activity in research appears to have been dissipated. If we are to believe what the head of General Motors research told the advertising men, the country now is suffering from standardization of ideas. "Monotony," he declared, "is the most terrible thing in the world. . . . Vitalize your products. . . . Take it as a message from the public that we will buy your goods when, as and if you ever produce anything we want."

This is a straight-from-the-shoulder plea for distinctiveness in products. It confirms what has been emphasized frequently in these columns—namely that consumers are attracted to unusual values; they are not interested in last year's models.

If we concede that this view of the buyer's attitude is correct, then we admit that any new development of sufficient importance to gain headway under present conditions must have the merit of distinctiveness.

Revolution in House Construction May Create New Industry

We believe that the greatest opportunity in the United States for the exercise of fresh ideas and for achieving the degree of distinctiveness required to make the undertaking a pronounced success lies in the field of small house construction. If those who are in a position to act will abandon most of the traditional ideas on materials, construction, methods of erection and financing, the cost of a small family residence can be reduced to such an extent that all current analyses of the house market will be rendered obsolete.

Today the number of potential home owners is limited by the exorbitant cost of building and by the unnecessary complications and needless excess burdens of financing. The prohibitive cost of construction is due largely to the fact that crude materials are shipped to the building site and there assembled by high-priced labor employing wasteful hand methods.

By adopting steel more generally, by arranging the work so that most of the cutting and fitting is done in shops under modern American machine methods and the assembly on the site is reduced to a routine task for supervised cheap labor, and by revamping the financing so that it is no more complicated or burdensome than the purchase of an automobile, homes can be offered to the public at prices it can afford to pay.

These changes are certain to materialize. Whether or not they develop in time to affect the present depression is an open question. In the meantime, the small house offers opportunities which steel producers cannot afford to overlook. Rolled steel in many forms will be required in the well-built, low-priced homes of the future.

THE AGE OF "STEEL"

A YEAR ago this publication—in response to changing conditions in the industry which it serves—dedicated its prestige, influence and performance to the promotion of steel.

The name was changed to "Steel." Methods of presenting editorial material were improved. More emphasis was placed on news. "The Week in Steel" was introduced to enable busy readers to high-spot in a few minutes the important happenings in the steel industry.

Effectiveness of The Business Trend was increased through the use of color. "Mirrors of Motordom" was given a more prominent position. Market reports were presented in more legible form and prices were quoted in larger type. The technical section was improved by better selection of articles and by the inauguration of a digest of engineering literature on steel. The scope and quality of the "Machine Tool and Plant Equipment" section was increased. The standard of editorials was raised.

Format, arrangement of editorial and advertising pages, typography and other physical characteristics were improved.

In making these changes, the publishers hoped to invest STEEL with greater freedom of action and increased opportunities for editorial evaluation and interpretation, to encourage readers to derive more fully the inherent values in the editorial and advertising pages and to attune the publication more closely to the swiftly moving events in the steel industry.

The results far exceeded expectations. Thousands of readers, advertisers, advertising agencies, publishers and others voluntarily voiced their approval and commendation. Of the less than fifty who on first impulse condemned the changes, more than half have since revised their opinion and now heartily favor the new form. That the step taken by STEEL is considered good publishing is evidenced by the number of periodicals which have followed STEEL'S lead in revamping their make-up, freshening their pages and adopting some of STEEL'S methods.

But STEEL never is satisfied with its current performance. Even while the improvements of the past year were in progress, representatives of STEEL were continuing to study the needs of its field. Thousands of readers and prospective readers were interviewed for the purpose of determining how STEEL may better serve them.

The results of this comprehensive survey of readers' requirements will be apparent in the publication during the ensuing year. STEEL will continue to wage war against any dead tonnage of superfluous words in editorial pages. Conciseness will be the watchword. Through

better knowledge of what readers need, more discriminating selection of editorial material, more careful editing and more concise presentation, STEEL is determined henceforth to give even greater value than heretofore—and in fewer pages.

This refinement of policy is dictated by the experience of the past year which shows conclusively that the steel industry is more interested in quality and conciseness of text than in mere editorial bulk.

STEEL also will make it easier for readers in certain groups to find the material of greatest interest to them. For instance, the new feature on page 43 of this issue, is introduced in response to the need of steel plant operating men for a quickly read digest of what is going on in their department of the industry. It will serve them as "Mirrors of Motordom" serves those who deal with the automotive industry.

From time to time other refinements will be introduced—each conforming to STEEL'S pledged promise of giving increased values to its readers and advertisers. In the main, the editorial policy which has carried the publication from obscurity to a position of high rank in business paper publishing will remain unchanged.

WITH STEEL on the masthead, with steel, the material to be promoted; and with steel, the industry, to be served, the course of the publication is charted definitely. And in striving to create an informed leadership among the rank and file of the industry; to facilitate the exchange of useful information on business, economic and technical matters; and to support all constructive movements affecting steel, the publication brings to its task new strength, clearer vision and a will to make STEEL the true exponent of steel, the material.

STEEL

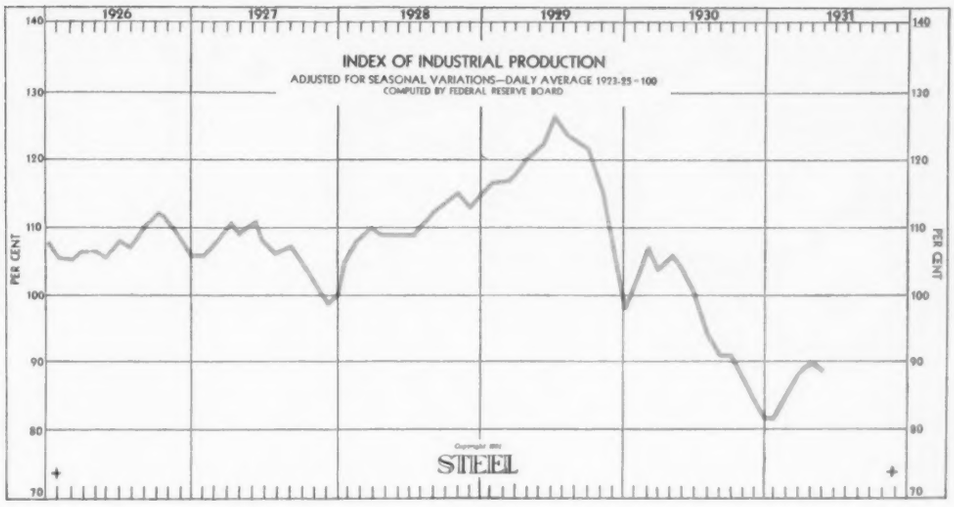
A PENTON PUBLICATION

CLEVELAND

Branch Offices: New York, Pittsburgh, Chicago, San Francisco, London

PRODUCTION · PROCESSING · DISTRIBUTION · USE

THE BUSINESS TREND



1930	
May	104
April	107
March	104
Feb.	107
Jan.	103

1931	
May	89
April	90
March	88
Feb.	86
Jan.	82

Business Scans Behavior Of Commodity Prices

AGAIN the eyes of business are focused on commodity prices. During the past two or three weeks the steady downward trend, which had continued unbroken for several months, again appeared to be on the verge of a halt. The *Annalist* index turned upward two weeks ago and then Irving Fisher's index advanced a fraction of a point after declining for 16 weeks. Many products have yet to show visible signs of strength, but the number of those which have improved their position is rather impressive.

The proposal for a moratorium on international war debts was a strong influence on prices. Its announcement was sufficient to give a momentary upward impetus to wheat, cotton, copper and certain other sensitive commodities. Nevertheless, signs of a turn in prices were apparent even before the debt truce was suggested. Doubtless the steady reduction of prices all along the line and particularly the drop in retail prices since the first of the year had brought the entire price structure to a point near stabilization.

Combination of Events Unfortunately Timed for Railroad Rate Plea

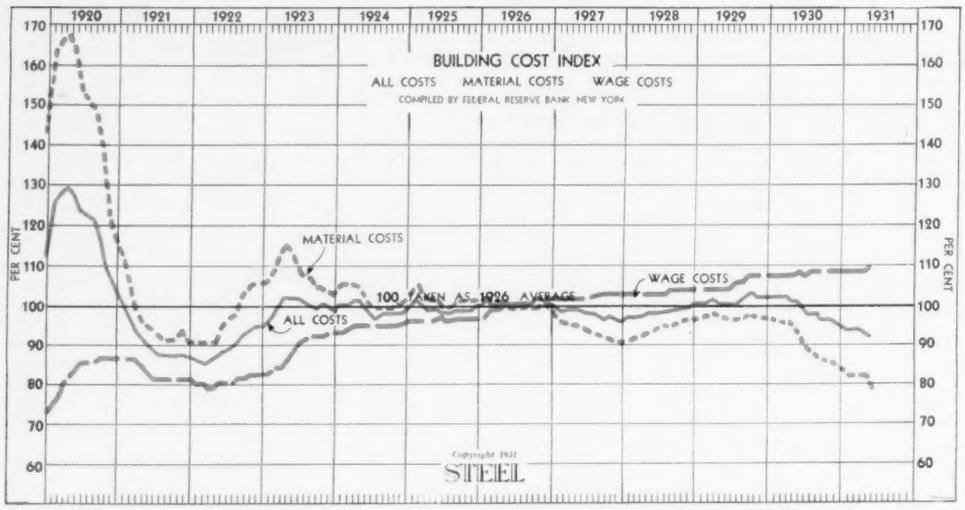
At any rate, this combination of events is unfortunately timed for the railroads. One of the possible merits of their plea for increased rates was that an increase during the dull summer period might prove to be the deciding factor which would turn the tide of commodity prices. The force of this argument now is decidedly weakened, because it appears that other factors, aided strongly by the debt moratorium, are acting to do for prices what the increased freight rates were expected to do. This stealing of the railroad thunder by the debt proposal probably will make it harder for the Class I roads to win their case.

Thanks to the more promising outlook on prices, and to the general elation over the new policies expressed as to international affairs, business sentiment has improved decidedly. A better tone persists in the face of gradual recessions all along the industrial front.

Rate of Industrial Activity Continues To Slacken Gradually

Freight car loadings are slipping down from their seasonal peak, which was disappointingly low. The rate of steelworks operations has dropped to about 36 per cent. Exports and imports of merchandise for May were lower than at any time since 1914 and 1921, respectively. Automobile output is diminishing at the rate of about 3500 cars weekly. Building construction has declined, although awards of structural steel continue in encouraging volume.

Business wisely discounts these immediate factors, believing that it is more important at this time to iron out the sore spots which are retarding recovery. Hence its critical watch on commodity prices, its approval of the debt proposal and elation over its resultant effect on the stock market, and also its anxiety that the freight rate question be settled advantageously for the entire business structure.


BUILDING COST INDEX
ALL COSTS MATERIAL COSTS WAGE COSTS
COMPILED BY FEDERAL RESERVE BANK NEW YORK
1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931
PER CENT
MATERIAL COSTS
ALL COSTS
WAGE COSTS
100 TAKEN AS 1926 AVERAGE
Copyright 1931
STEEL

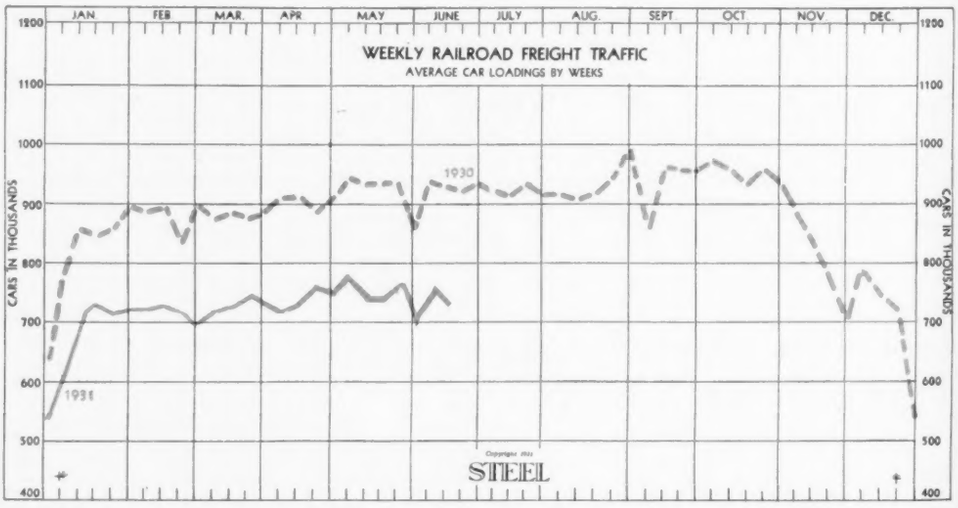
	Per cent	
All Costs	**1931**	**1930**
May	92	100
April	93	100
March	94	101
Material Costs		
May	78	93
April	81	95
March	82	95
Wage Costs		
May	109	108
April	108	107
March	108	107

Decline in Materials Index Brings Lower Building Cost; Wages Gain

The index of the cost of building compiled by the Federal Reserve Bank of New York declined for the second successive month as in May it settled to 92. The indicator, with 1926 as a base, held unchanged through the first three months of the year at 94 before losing a point in April. The May index is the lowest since August, 1922, when total costs were at 91. Building wages, however, went up one point in May to 109, after remaining unchanged since last July, and are now at the highest point of the index. Material costs dropped three points in May to 78, establishing another new low. A year ago material costs were at 93, and two years ago, at 97. In May last year total costs were at 100.

Freight Car Movement Falls Sharply as Shipments of All Commodities Lag

After establishing in the previous week the second highest total of the year to date, railroad freight car loadings in the week ended June 13 took a sharp drop which scarcely can be attributed to seasonal factors, and reached 732,453 cars. In the same week a year ago a very slight reduction was recorded, but two years ago a small gain was made. The week's movement was more than 20 per cent under that for the 1930 week and more than 30 per cent under that for the 1929 week. All districts suffered losses in all commodities, compared with the past two years. Ore loadings were very slack, being reduced to 27,614 cars by a margin of 34,819 cars under the like period of 1930.



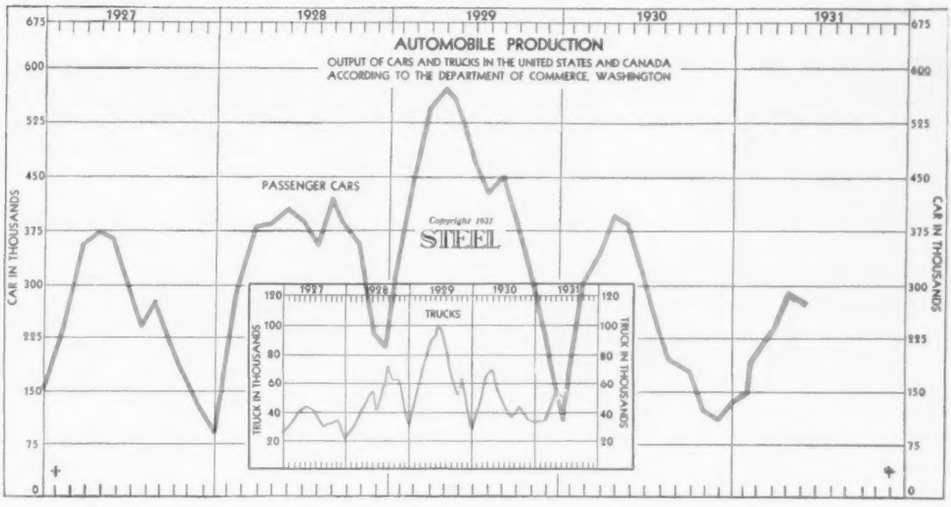
	1931	1930
June 13	732,458	926,066
June 6	760,890	935,582
May 30	710,934	860,064
May 23	755,071	929,596
May 16	747,732	928,757

Passenger Cars

	1931	1930
May	280,041	541,310
April	53,131	74,477
March	241,727	350,559
Feb.	187,948	294,868

Trucks

	1931	1930
May	47,812	94,940
April	299,736	393,804
March	47,671	66,559
Feb.	41,862	51,084

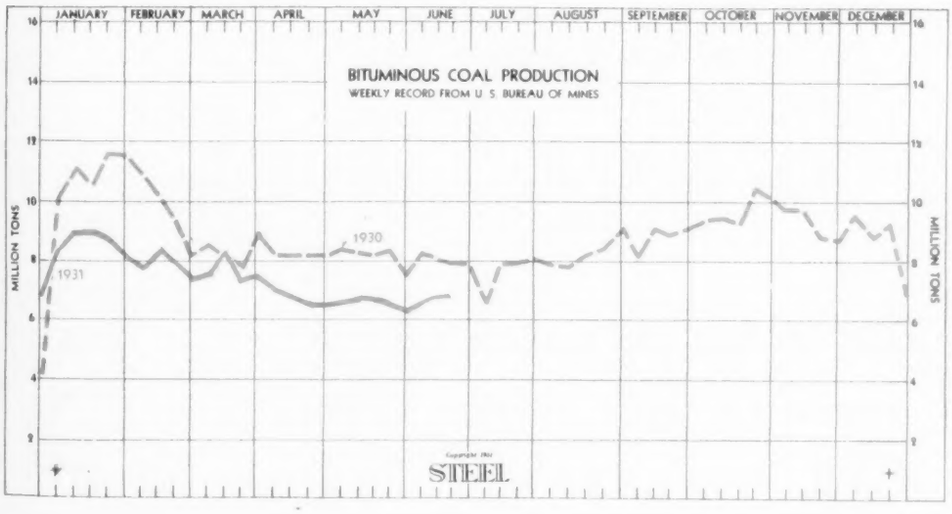


Auto Production Tapers, Passenger Cars Hold Relative Position Firmly

May production of automobiles in the United States consisted of 315,115 vehicles, of which 269,420 were passenger cars and 45,695 were trucks, compared with 335,708 vehicles in April, 420,027 in May, 1930, and 604,691 in May, 1929. Canada produced 10,621 passenger cars and 2117 trucks for a total output of 12,738. Compared with the previous month, total passenger car production was 280,041, down 19,695 units, total truck output was 47,812, down 5319 units, and the grand total for the two countries was 327,853, down 25,014 units. Output of passenger cars, trucks and all cars in Canada, and output of trucks in the United States in May closely paralleled March figures, but passenger car output in the United States held more firmly.

Output of Bituminous Coal Remains Steady Throughout May

Soft coal output continued on a fairly even keel during the first three weeks of June and in the week ended June 20 totaled 6,644,000 tons, a decrease of only 30,000 tons, or 0.4 per cent from the output of the preceding week. During the corresponding 1930 week 7,998,000 tons were produced. Except for slight irregularities, the general seasonal trend at this period of the year is one of slow, gradual expansion. Total production of bituminous coal during the present calendar year to June 20 amounts to 180,515,000 net tons. In a similar period of 1922 there were 184,344,000 tons mined; production in three months of 1922 was unusually high, after which it dropped abruptly to a very low level.

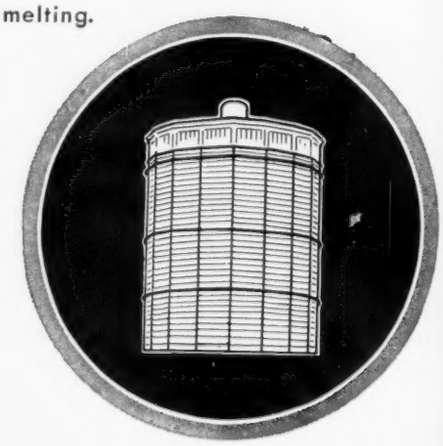


Thousands of Tons

	1931	1930
June 20	6,644	7,998
June 13	6,674	7,986
June 6	6,585	8,151
May 30	6,481	7,590
May 23	6,628	8,272
May 16	6,783	8,169
May 9	6,715	8,285

GAS HEAT FOR SOFT METAL MELTING

GAS provides the best possible heat for soft metal melting operations: it quickly attains the proper thermal head, and—what is at least *equally* important—it maintains it with a tolerance of but few degrees. The new book "Gas Heat in Industry" contains definite information about the application of gas to soft metal melting. You should have a copy.



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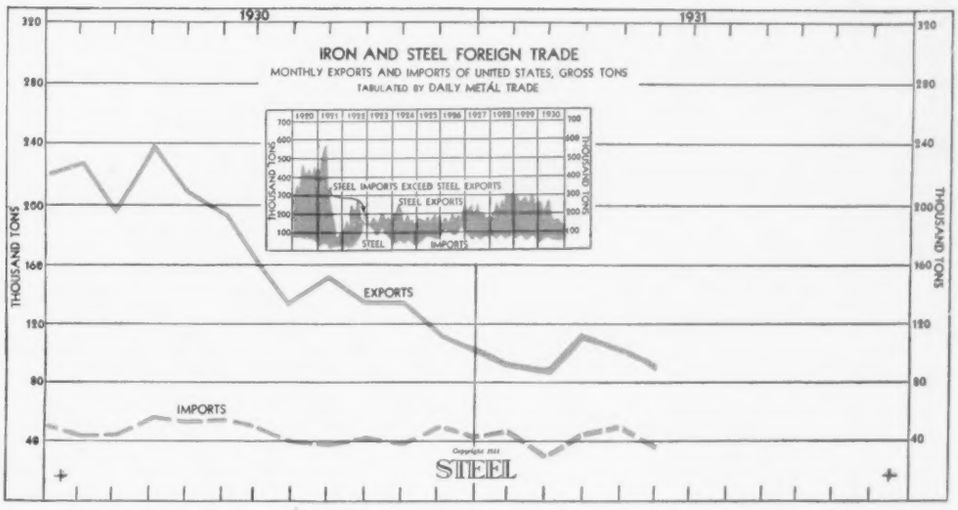
GAS FOR HEAT
WHEREVER HEAT IS NEEDED



Exports

	Tons
May, 1931	91,407
April, 1931	101,081
May, 1930	195,425

Imports

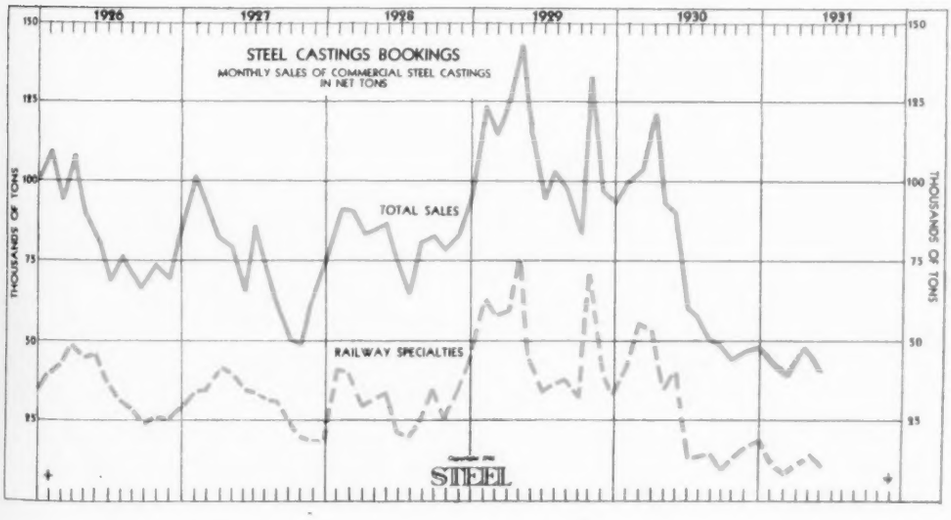
May, 1931	37,176
April, 1931	47,872
May, 1930	54,315

Export and Import Tonnages Lowest For any Month Since February

Foreign trade volume in iron and steel took a downward step in May and in both exports and imports reached the lowest totals since February. Exports amounted to 91,407 gross tons, down 9674 tons from April, while imports, at 37,176 tons, were 10,696 tons lower than in the previous month. In terms of the daily rate, exports dropped from 3369 to 2949 tons and imports from 1544 to 1199 tons. Shipments to foreign countries held unchanged for one item, there were increases in 16, and decreases in 29. Iron ore exports expanded sharply to 34,973 tons, all going to Canada. Imports of the same commodity were up. Import trade reductions were chiefly in pig iron, steel bars and concrete bars.

Production and Bookings of Steel Castings Establish New Lows in May

There was no exception to declines in either bookings or output of steel castings in May. Orders for 27,738 tons of miscellaneous castings and 11,306 tons of railway specialties totaled 39,044 tons. Miscellaneous castings in the previous month were booked for a tonnage of 29,812, and railway castings, 16,195. May orders for the latter were at about the March level. Figures for both the miscellaneous classification and the total dipped below the recent low of February. Total production also found a new low, under that of last November, and amounted to 43,141 tons. Railway specialties were produced at 17.9 per cent of capacity, miscellaneous castings at 39.7, and total castings at 29.6 per cent.



Total New Bookings

	Tons
May, 1931	39,044
April, 1931	46,007
May, 1930	91,077

Railway Specialties

	Tons
May, 1931	11,306
April, 1931	16,195
May, 1930	42,051

THE BETHLEHEM STEEL COMPANY SPEEDS PRODUCTION AT ITS SEPARATED PLANTS WITH THE AID OF TELETYPEWRITER SERVICE

From the Bethlehem headquarters, approximately 1400 messages a day are sent by Teletypewriter to distant plants.

THROUGHOUT the industry, The Bethlehem Steel Company is noted for its fast service to customers. This is due in large measure to the rapid and flexible communication between separated plants, made possible by Teletypewriters*. From Bethlehem, Teletypewriter circuits extend to New York, Philadelphia, Buffalo, Johnstown, Coatesville, Lebanon and Steelton, Pa., and Sparrows Point (Baltimore), Md. Private telephone lines connect these and still other properties, move traffic and keep the vast network of blast furnaces, mills and shipyards in constant contact with each other.

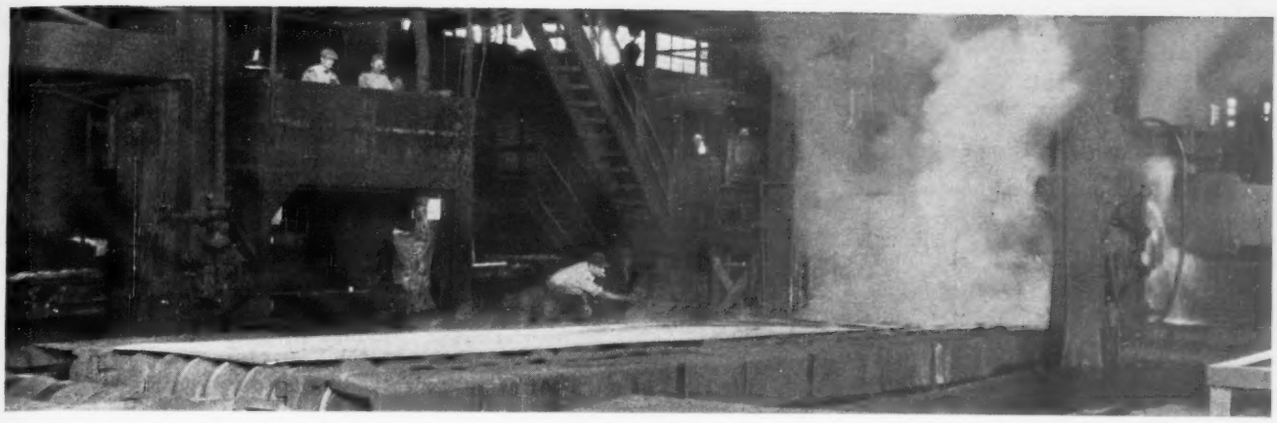
As orders are received, they are flashed by Teletypewriter for allocation. Complete details accompany each order. Production—and in some cases shipment—can be started immediately.

Many other matters are handled by Teletypewriter. Executive instructions. Mill reports. Furnace operations. Changes in specifications. Traffic details. Coal shipments. Ship movements. Purchasing.

Teletypewriters speed business and cut costs for small companies as well as large. They bring separated units "under one roof," whether 300 feet or 3000 miles apart. Your local Bell Telephone Company will gladly give you full information.

* * *

**Teletypewriters are connected by Bell System wires in such a way that a message typed on one is reproduced in identical typewritten form at the same moment on any or all connected machines.*



WHERE ROLL AND INGOT MEET

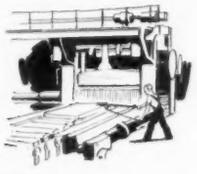
USE of the vacuum tube and the photoelectric cell in devising automatic controls is spreading in the steel indutsry. At one steel plant where department heads recently were discussing the further training of young engineers who had been two years in the electrical department, it was decided to give them a course in the vacuum tube.

An eastern steel producer has a fine example of the usefulness of the photoelectric cell. A sheet coming out of a new reheating furnace cuts off a beam of light, whereupon the motor driving the rollers in the runout table are speeded up, hastening delivery of the sheet to the mill.

Similarly, the new soaking pit doors in the steelworks of a large midwestern company are opened and closed by photoelectric cells. The crane operator has in his pulpit a switch by which he can turn on and off the beam of light which causes the doors to move.

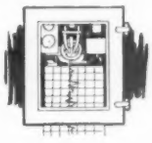
Listening In on Bearings

A large manufacturer of bearings, in addition to the regular equipment for determining and locating defects in roller bearings, has a new machine which detects the variations in the sounds that the bearings give out while in operation. The purpose of this machine is to give warning of an approaching defect, and thus prevent expense and loss of time in making repairs.



AT THE plant of an important producer near Pittsburgh, has been built a novel overhead walkway. Located over the new rotary pipe mill, it permits observation of every part of the mill, eliminates the necessity of walking around all the different units when inspecting the plant, and it has great value in promoting safety.

Oil is regarded by mill superintendents as a fine fuel for heheating furnaces excepting for two disadvantages. Its use increases the amount of scale on the steel, and moisture from the steam used to atomize the oil damages the refractory lining. Can there be developed an economical way of atomizing oil which would cause no damage to the lining? This is a question which has been asked lately by several mill superintendents who are atomizing with steam.



AT A PLATE mill in this country where it is realized that quality of steel depends to a large extent on having a certain rolling temperature and a certain rate of speed in rolling, electrical pyrometers have been installed. These record temperature of the steel within five seconds after the steel has passed a certain point on the mill.

In a new strip mill in Ohio an engineering company has installed a new type of spray for knocking the scale off the steel in rolling. It is automatic, being controlled by an electrically-operated hydraulic valve.

Many steel company metallurgists say they encounter difficulties because young engineers with consuming companies frequently are given to writing specifications for their steel. Frequently the steel companies furnish steel to these specifications and then get complaints. As a result the steel companies are confronted with many claims which they believe unjustified. The steel company metallurgists believe best results for the consumers are obtained from a policy such as that of the Edward G. Budd Mfg. Co., Philadelphia and Detroit. This interest tells the steelmakers what it is going to do with the steel, and the steel companies then must furnish material which will stand up to the work.

Shorter Amortization Periods

Expenditures for new steel plant equipment are being based on much shorter anticipated periods of operating life than formerly was the case. One large company buys machine tools for its specialty departments on a two-year amortization basis. Purchases of combustion controls for open-hearth furnaces appear to be amortized as a rule over two years.

Original bronze nuts on screwdowns in a number of mills throughout the country have been replaced in recent years by case-hardened or hardened tool steel nuts. In one Pennsylvania mill a 0.40 per cent carbon steel screw set in a bronze nut has been replaced by hardened tool steel screw and nut. Formerly the bronze nuts would have to be replaced on the average of every nine months, and the screw every two or three years. The hardened tool steel screw and nut now have been in almost continuous operation for six years and there is no sign of wear so that it is believed the guaranteed life of 15 years will be achieved easily.

A SEAMLESS tube manufacturer is giving close attention to preparation of billets. It is using three methods of removing surface defects. One is a combination of pickling and scarfing with an oxyacetylene flame.

Another is a combination of pickling and chipping. The third is a combination of peeling and chipping. Results and costs by the three methods are being studied.

One of the large steel companies is making its own motor rollers. It is doing this by placing a long shaft in an ordinary roller and direct-connecting it to a motor, with a set of spur gears for controlling the speed.

A soaking pit cover made of 18 and 8 chrome-nickel alloy steel was installed some months ago in an eastern plate mill. It has outlasted a couple of cast-iron covers and shows no effects of heat or corrosion. It looks to be good for an indefinite period. In the alloy cover there is no tendency toward warpage, with resulting decreased refractory cost.

CASTING ingot molds is a subject which loses no interest with the years. One large interest which has been placing molds on ordinary tar paper, now is experimenting with dipping in tar. Another which installed expensive tar dipping machines, entailing the use of large cranes and the maintenance of a large reserve of molds due to the necessity for draining each mold after dipping, appears to be well satisfied with this method. A big steel company which had blow-hole trouble due to moisture in sprayed tar, now is experimenting with spraying of dehydrated tar. One middle western steel company is getting good results from aluminum paint, both painted and sprayed. Some companies simply place a small quantity of tar on the stool when casting high-carbon ingots. For alloy steel ingots and for sheet bars, graphite paint is used extensively, some plants spraying and others swabbing it with a brush. With one large company, painting or swabbing is taboo, because this method is apt to result in a pool of this coating material draining to the bottom of the mold, with resulting in harm to the ingot.

One of the large steel companies now is seeking to encourage the development of a machine to detect pipes in steel. It admits that in cutting off the tops of ingots involves considerable guesswork. It desires a machine which will detect pipes, eliminate the guesswork and, consequently, prevent wastage of a lot of good steel which is removed in order to be on the safe side.

Use Joggle Joints in Welding

In welded repairs and construction in round structures such as blast furnaces shells and stoves, vertical tanks, stacks, pipes, etc., some steel plants are making joints of "joggle" type. The method is to enlarge the opening of the lower section, setting the top section in this enlarged opening, after which the space is filled in with a weld.

At one mill soaking pit covers are made by welding scrap plates together, providing them with cast ends and sides which are bolted to the cover. The cast ends and sides are used because rolled steel plate would not stand up under contact with the flame at the top of the soaking pit walls. These composite covers cost about half as much as the all-cast units.

Arches of soaking pits at one plant formerly were laid up with brick having their ends to the roof and in straight rows. This made a thickness of 9 inches of brick. The foreman bricklayer now places the sides of the brick against the roof casting, staggering each row with those adjoining it. This gives a roof lined to a depth of 4½ inches or exactly half the former quantity of brick. The stagger method of bonding appears to hold brick more securely and permits one to drop out instead of a whole row. In addition to a saving of 50 per cent in the amount of brick, a longer life per lining is afforded.

Temperament Finds a Cure

OLD-TIME steel men recall that many of the rollers of a previous generation were as temperamental as grand opera stars. Some of these old rollers regarded themselves as the heart and soul of an entire steel plant.

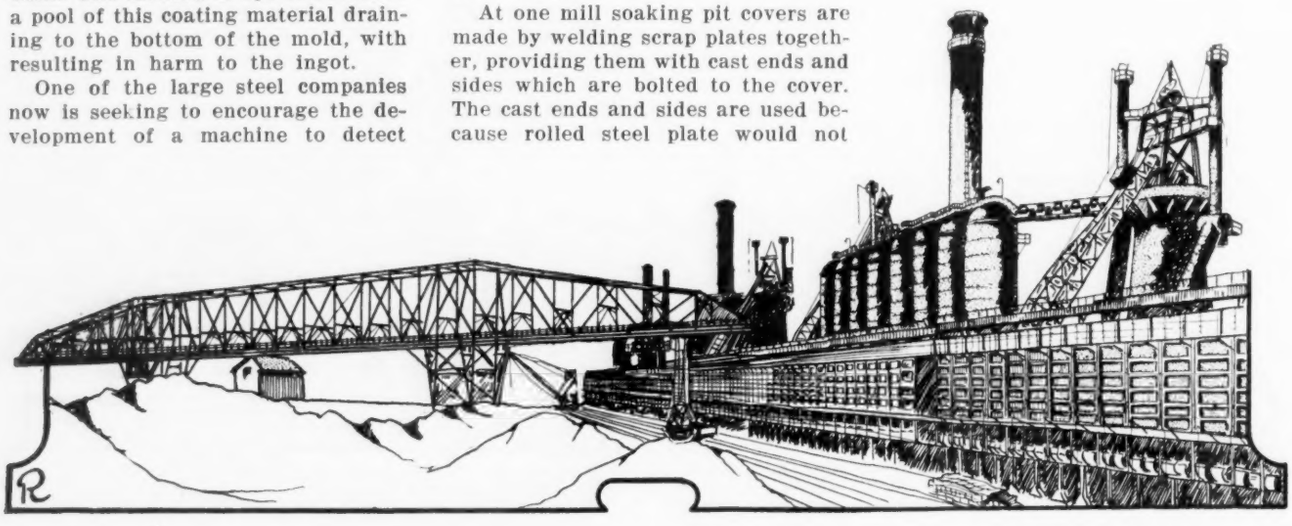
One day a young mill superintendent, now an important figure in the industry in the Chicago district, was walking through the plant and seeing something which he did not like spoke to the roller about it. The roller made no answer but later went to the superintendent's office where he objected to the interference on the part of the superintendent.

"If it occurs again, I'll put on me coat," threatened the roller.

Much to the roller's surprise the young superintendent told him to put on his coat and get out. This incident had considerable effect in clearing up other cases of temperament so that rollers gradually came to acknowledge that the superintendent really did have something to say about the operation of a mill.

ONE large interest, assuming that there has been an average decrease of about 10 per cent in fuel consumption in open-hearth furnaces during the past few years, irrespective of what kind of fuel is used, is analyzing the factors which have contributed at different plants to bring about this average result. In this analysis the value of automatic combustion control, insulation and other factors all are being assessed. The company hopes from this analysis to pave the way for some further savings, even if they mean additional expenditures.

Incidentally, the general superintendent of one large steel plant, finds that between 40 and 50 per cent of the problems confronting his organization are concerned with fuel and fuel consumption.



DETAILS at center of lift span, Burlington-Bristol bridge, showing steel plate roadway, and machinery house on platform above, office and locker room at left outside roadway and toll house in center of roadway, all entirely of steel

Bridge Incorporates 534-Foot Steel-Floored Lift Span

EMBODYING what is claimed to be the longest lift span yet built and the longest known movable span, steel plate flooring on the lift span, steel toll and machinery houses and office building, and deck truss members of constant depth I-beams, the Burlington-Bristol bridge across the Delaware river from Burlington, N. J., to Bristol, Pa., is characterized also by a symmetry of design and strict economy in construction features.

The bridge is 3027 feet in length, with a 20-foot roadway and a 4-foot sidewalk on one side only. Length of the lift span between bearings is 534 feet, providing a horizontal navigation clearance of 500 feet. Vertical navigation clearance with the span "down" is 61 feet; with the span "up," 135 feet. Moving load including lift span and counter-weights is 2460 tons. Normal time of opening the span is 2 minutes. The entire structure was erected at a cost of $1,400,000.

To conform with the through lift span, through tower spans on each side were planned, which, in conjunction with the towers, would afford true symmetry for the three principal spans over the deep water. Emphasis on the symmetry of these three main spans was obtained by subordinating the approach spans and making them of the the deck type. After several studies of this preliminary layout it was decided that the top chords of the lift span and of the two adjacent tower spans should be carried through in a continuous line with no abrupt break at the towers. The lines of the towers, particularly at the back legs, were studied carefully so that they might appear properly to follow out the lines of the supporting trusses; emphasizing the load carrying function of the vertical main columns and the bracing function of the curbed back legs.

Steel Plate Roadway

The roadway floor is of interest in that it is entirely of steel, the roadway surface being of steel traffic plates heavy enough to carry truck wheel loads to the supporting stringers. This floor design was chosen after extensive studies of various possibilities because, for the conditions to be met, it proved most economical and with economy afforded also simplicity, fireproofness and permanence, requiring a minimum of maintenance.

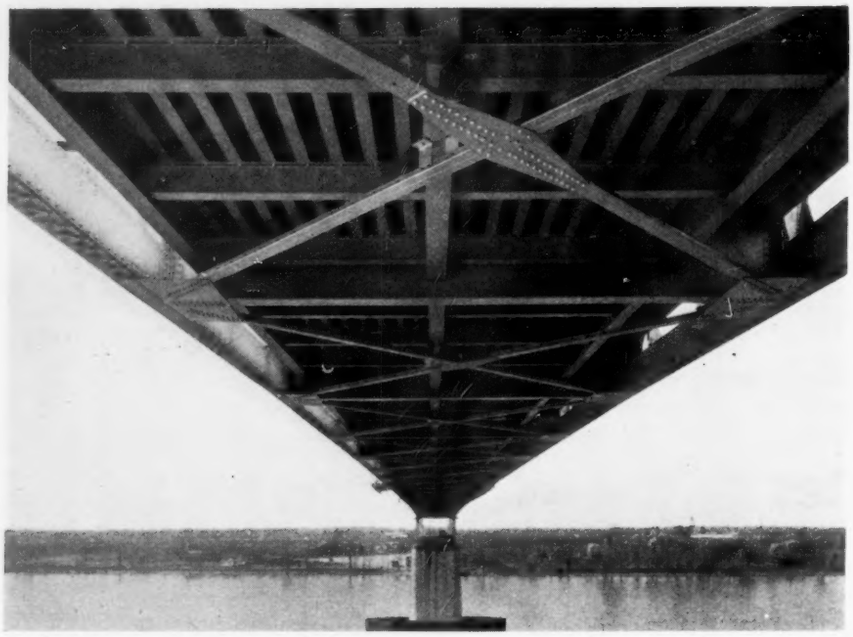
It could be erected quickly and used immediately. The great length of the span results in a substantial addition to the weight of the trusses for every pound added to the weight of the floor, and, being a lift span, every pound increase in the weight of the span requires equal increase in the counterweights, at the same time increasing the size of the suspending ropes, towers, machinery and even the piers which are supported on piles. Roughly, each pound added to the weight of the floor meant an additional cost of 12 cents in the trusses, towers, machinery, piers, etc. The use of a light floor therefore was indicated as the most economical solution, even at some additional expense in the cost of the floor material itself.

It was estimated that the steel plate floor would cost about $12,000 more than a light weight concrete floor of equal capacity, but that the lighter weight of the steel floor effected a saving in trusses, towers, machinery, etc., of about $54,000, indicating a net saving of about $42,000 by the use of steel plate floor.

The flooring is a standard traffic plate or floor plate, manufactured by the Alan Wood Steel Co., Conshohocken, Pa. The grade was kept to a minimum to reduce slippage, the maximum grade being 1 per cent except for a short distance at each end of the span where it approaches 3 per cent.

Plates ⅝-inch thick were used, supported on longitudinal stringers spaced about 13 inches apart. Three main carrying stringers were provided, one at each curb and one along the center line of the roadway. Between these stringers were riveted 12-inch crossbeams at about 6-foot centers and these in turn support the intermediate 8-inch stringers. A crossbeam was used at each end of each panel to avoid riveting the small stringers into the floorbeams, and the floor plate fastens to the top flanges of floorbeams as well as stringers.

The floor plates were made in widths slightly over 3 feet and came riveted to the stringers in panel lengths. The longitudinal joints between floor plates are always on the center line of a



View looking north from the south tower pier of the bridge, showing under side of the lift span which is partly raised, revealing the floor construction from below

stringer and the transverse joints are on the center lines of floorbeams. The contractor, McClintic-Marshall Co., Pittsburgh, was given the choice of welding or riveting the plates to the beams and elected to rivet them, all rivets being flattened to ¼-inch, thus giving additional advantage to traffic against slippage.

Loads Carried by Stringers

Several studies were made to determine the best arrangement of supporting beams for the plates. An arrangement involving the use of crossbeams on top of the main stringers was found to require slightly greater floor depth and also a heavier plate. This is due to the fact that for longitudinal spans the floor plate must carry the heaviest wheel loads as a beam spanning the crossbeams, while for transverse spans as used the width of the heaviest wheels is such that a considerable part of the load is carried directly by the stringers without appreciably stressing the floor plate, and the floor plate design therefore is determined by lighter trucks with narrower wheels.

The troublesome problem of the proper type of construction for houses on steel bridges was met by building steel houses. It was judged most suitable that the houses should be of the same material as the bridge, affording neatness of design, fireproofness and a flexibility suitable to the deflections and vibrations of the structure.

Three houses are provided, as shown in the illustration on Page 45—the toll collection house in the center of the roadway, a small office and locker room supported on cantilevers outside the truss on the opposite side of the roadway from the sidewalk, and an overhead machinery house. Walls and roofs of all three are of 12-gage copper-bearing steel, riveted and welded to steel studs and rafters. Eaves are finished with a suitably formed cornice and the ridges with ornamental ridge rolls. Window frames and doors also are of steel. Floors of the toll collection house and office are of wood laid above steel plates, with insulating material between the two. Oil heaters are provided in the houses.

In all bridge details study was made to insure suitability and conformity to the main features of the structure, and in accord with the necessary strict economy. Steel handrails are of simple lines with members of substantial size, but without thin lacing bars or other features to detract from the whole and to be subject to more rapid deterioration than heavier members. In the bracing, selection was made which would provide fewer heavier members rather than many light members which might appear flimsy.

Simplicity Emphasized

The light poles on the deck spans and the viaduct structure are of simple pipes carried up above the roadway lights to serve as flag staffs, thus securing effective simplicity and economy in accord with the entire steel design; since the principal structure is composed in many parts of silicon steel, with corresponding lightness and slimness of members.

These studies and considerations indicate that the bridge engineers, although faced with the necessity for utmost economy, did not neglect the aesthetics of the structural design, a neglect which is commonly charged to bridge engineers. Engineers for the bridge were Ash-Howard-Needles & Tammen, New York. The structure is owned by the Burlington-Bristol Bridge Co., Burlington, N. J.

Outlines Five Points for Prolonging Conveyor Life

Five precepts to be observed in the care of belt conveyors have been set forth by W. E. Philips, engineer, Link-Belt Co., Chicago, as answers to the question of how to increase belt conveyor life. Based upon the assumption that the original conveyor installation has been engineered correctly, the five points to be watched are as follows:

1. *Lubrication.* Sufficient greasing with the proper type of grease, although infrequently needed, is essential.

2. *Cleanliness.* The space under the belt should be kept clean, as should the decking when material overflows and threatens to clog idlers. Clogging increases the friction load, resulting in greater power consumption and wear on the driving mechanism as well as the idlers and belt.

3. *Loading.* Overloading should be avoided. Material should reach the belt in the same direction the belt is moving and with as little impact as possible.

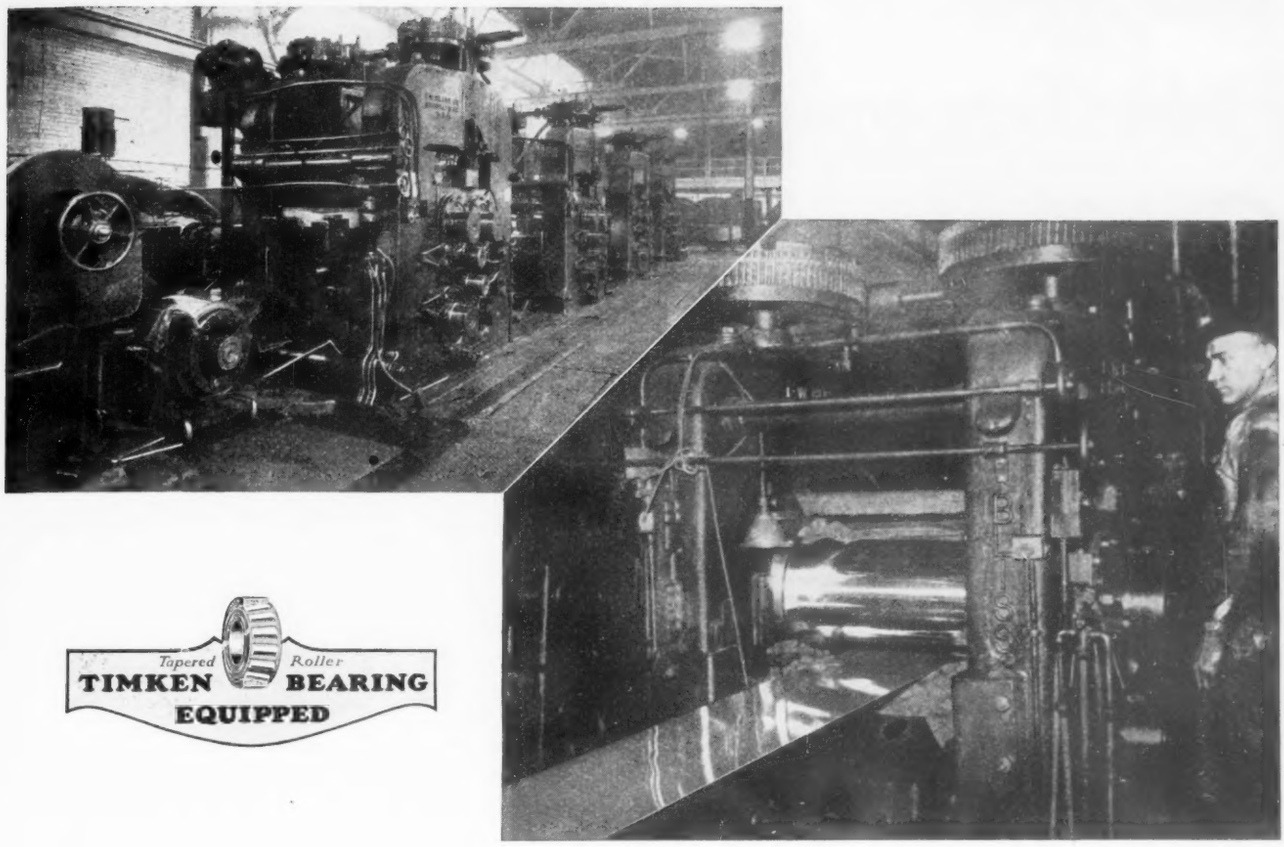
4. *Wear.* Belts scraping against framework, skirtboards or wedged material are the chief causes of wear. Dragging idlers, caused by insufficient lubrication, or clogged rolls cause undue wear on both the belt and idler, and put an extra load on the driving mechanism.

5. *Training the belt.* The belt should be trained while empty; then if it runs out of line when loaded it is because of unequal loading. The belt should contact the center roll of the idler because this roll steers the belt. Idler foundations should be firm and secure. Side or guide idlers should not be used when training the belt.

Industrial Workers' Health Reported Good

A favorable health record among industrial workers during the second half of 1930 is indicated from reports of a group of industrial sick-benefit associations analyzed by the United States public health service. The record is based on frequency of claims for sickness and nonindustrial accident benefits covering cases causing disability for eight consecutive days or more.

The death rate among about 19,000,000 industrial policyholders of the Metropolitan Life Insurance Co. is reported as being about 1 per cent less than in 1927, when the previous minimum death rate was established. Among the sixty-odd thousand members of the relief plan of the Bethlehem Steel Corp., both mortality and morbidity in 1930 were substantially below the average established during the prior years.



Tapered Roller
TIMKEN BEARING
EQUIPPED

The Timken Bearings in these cold mills in one of the country's largest steel plants already have over 4 years of satisfactory performance—and are still going strong.

They comprise 4 Bliss cluster mills, 10½" and 21½" x 32", and 1 Bliss 2-high mill 18" x 32". Timken Bearings are used on the backup rolls of the cluster mills and on the rolls of the 2-high mill.

The cluster mills have one 4 row Timken per neck, size 12" x 19½" x 11¼", capacity 484,000 pounds at 25 R.P.M. The 2-high mill is equipped with 4 row Timken Bearings size 10" x 15¾" x 9¾", capacity 158,000 pounds at 35 R.P.M.

Each mill is driven by a 250 H.P. motor through combination gear and pinion sets. The motor pinion shafts and intermediate shafts of these drives are also Timken-equipped.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

Seek Metals To Withstand Higher Temperatures

GENERAL interest in the subject of the effect of temperature on the properties of metals was indicated by the attendance at the symposium on that subject which was held jointly by the American Society for Testing Materials in co-operation with the American Society of Mechanical Engineers at the annual meeting of the former organization in Chicago, June 22-26. The symposium was divided into two sessions and approximately 350 were present at each session, the largest gatherings in the annals of the society.

Twenty-eight papers were presented in preprint form for discussion at the sessions, and due to the number of papers, brief summaries were given to prepare the way for discussion. The afternoon session was opened by W. L. Abbott, Commonwealth Edison Co., Chicago, who called attention to the fact that as soon as metals are developed to withstand higher pressures and temperatures, the power plant designer will find use for them.

Papers Are Summarized

L. W. Spring, Crane Co., Chicago, presented a summary of the various papers for the session which dealt with engineering trends and requirements for metals at high and low temperatures. The papers covered power plant, oil, chemical, ferrous metal, nonferrous smelting and refining, automotive and aeronautical and the ceramic industries. Considerable discussion was presented in written form which in general was devoted to supplying additional information to that given in the various papers.

At the evening session 17 papers were presented in preprint form, and were summarized by H. J. French, International Nickel Co., New York. The papers presented data on the properties of available metals for high and low temperature service, and included information on both ferrous and nonferrous materials. The discussion as in the other session was devoted mainly to presenting additional data to amplify and bring up-to-date, the material presented in the preprinted papers.

A second symposium, attracting unusual interest, was that devoted to malleable iron castings and was arranged jointly by the American Society for Testing Materials and the American Foundrymen's association. Preceding the symposium, Hyman Bornstein, Deere & Co., Moline, Ill., chairman of committee A-3 on cast iron, presented a brief report of the committee's activities which included progress being made on an extensive investigation of impact testing, and the formation of new subcommittees on cast iron culvert pipe and automotive castings.

W. P. Putnam, Detroit Testing Laboratory, Detroit, presented the report of committee A-7 on malleable castings in which it was stated that a decision had been made to undertake a study of embrittlement of malleable cast iron in hot galvanizing, and to form a new subcommittee to study the corrosion-resisting properties of malleable cast iron. The proposed new tentative specifications for high-strength malleable iron castings were withdrawn after discussion by members of committee A-7.

Following the reports of the various committees the symposium on malleable iron castings was opened by W. P. Putnam who briefly described the manufacture of those castings and the various physical properties. H. A. Schwartz, National Malleable & Steel Castings Co., Cleveland, then presented some supplementary data and discussed the tensile properties.

Enrique Touceda, Malleable Iron Research institute, Albany, N. Y., spoke on higher strength malleable iron, and stressed the necessity for co-operation between engineer, designer and foundryman. In addition to the data presented in the symposium, O. W. Boston, University of Michigan, Ann Arbor, Mich., gave a short abstract of some results he obtained in investigating methods to determine machinability of malleable iron castings. F. L. Wolf and L. A. Meisse, both of the Ohio Brass Co., Mansfield, O., presented information on corrosion tests of malleable iron.

Plans for the standardization of some of the most widely used iron-chromium-nickel and related alloys were announced at a session on steel, wrought iron and magnetics, by Jerome Strauss, Vanadium Corp. of America, Pittsburgh, chairman of committee A-10 on those materials. J. B. Young, Reading Co., Reading, Pa., chairman of committee A-1 on steel, mentioned that a new tentative specification for structural steel for ships had been approved, and it will supersede the present standard specification. The committee also has proposed two new tentative specifications for normalized and tempered alloy steel forgings for locomotives, and for steel plates of flange and firebox qualities for forge welding. The committee also recommended that specifications for alloy steel bolting material for high temperature service be adopted as a standard by the society.

New Hardness Tester

H. H. Morgan and J. R. Mooney, both associated with the R. W. Hunt Co., Chicago, described a device for measuring the impressions made by a 19-millimeter ball and 100,000-pound load which is used in testing tee and girder rails. They claim that results obtained indicate the same hardness as is obtained with standard brinell impressions on machined surfaces. J. V. Emmons, Cleveland Twist Drill Co., Cleveland, presented information on a method for measuring the strength and plasticity in hardened tool steels by a torsion test. From the strength and plasticity obtained by the method a value called the co-efficient of toughness is evaluated.

Report of the research committee on yield point of structural steel by M. O. Witheroy, University of Wisconsin, Madison, Wis., chairman, included results of tests on rate of strain and speed of the movable head of the testing machine. The data indicated that the speeds of movable head used in testing should be based upon the rate of strain which it is desired to impose upon the specimen.

Committee A-6 recommended a proposed tentative revision of the standard method of test for magnetic properties of iron and steel which relates to the incorporation of the Owen bridge method and the alternating-current potentiometer method as alternative test procedures. R. L. Sanford and G. A. Ellinger, bureau of standards, Washington, pointed out that thermomagnetic analysis proper-

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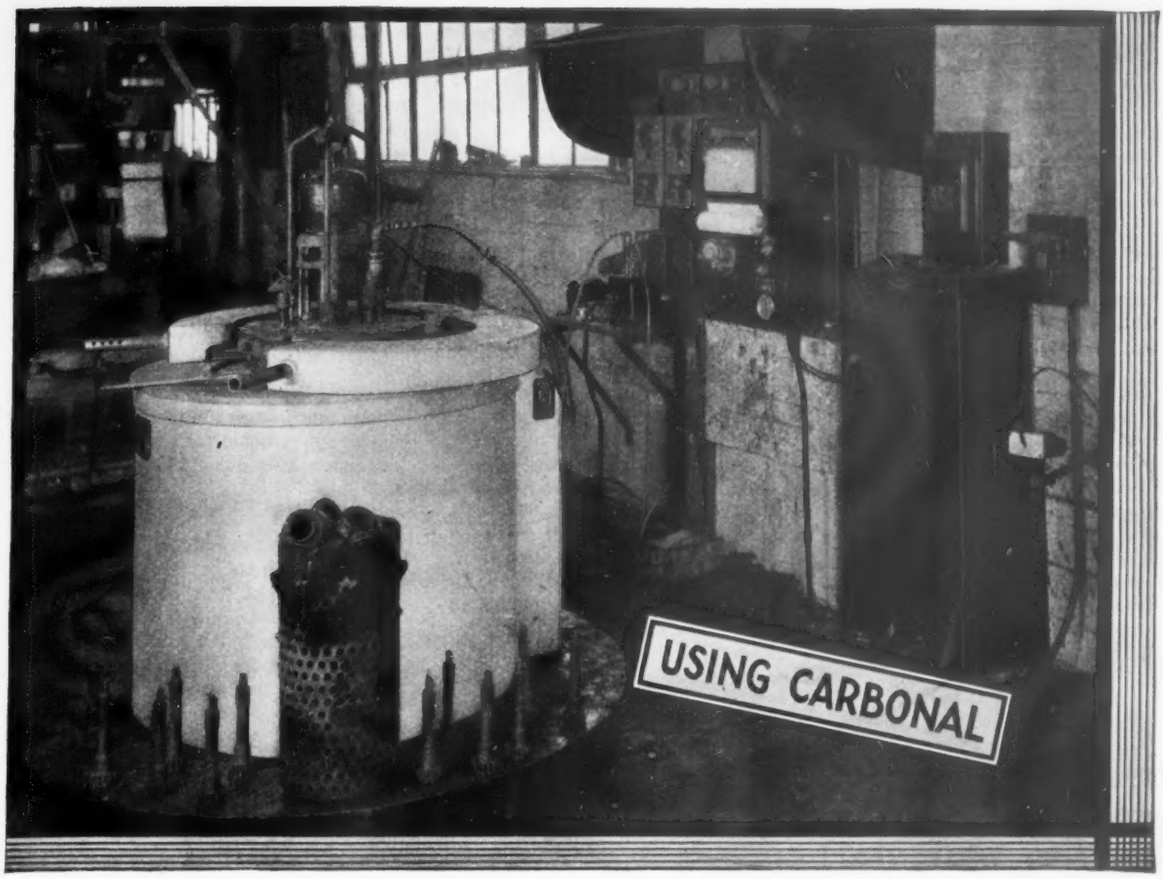
O. L. MOORE
Engineer of tests, Universal Atlas Cement Co., Chicago



AND

STILL ANOTHER JOB FOR CARBONAL

AND THE

ELECTRIC VERTICAL CARBURIZER

Another Electric Vertical Carburizing furnace using Carbonal, the liquid carburizing agent, was recently installed at the Lindberg Steel Treating Co., Chicago. These furnaces are able to give not only the required case depth, but also are able to produce a case structure that meets definite specifications as to carbon concentration and gradation.

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ly performed and interpreted shows great promise as a method for studying the structure of steel and the transformations associated with heat treatment.

Fatigue tests on weld metal specimens 1-inch diameter show that the direction of deposition does not have a large effect on that value, and that rough, unmachined weld metal has a higher endurance limit than machined and polished weld metal, according to results obtained by R. E. Peterson, and C. H. Jennings, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Peening increases the fatigue strength, and annealing at 1700 degrees Fahr. results in coarser grain structure and lower fatigue strength. These points were brought out at a session dealing with corrosion and fatigue of metals.

The report of committee A-5 on corrosion of iron and steel, presented by H. E. Smith, New York Central Lines, New York, mentioned additional failures in the sea water immersion tests. Results obtained by the committee indicate that the acid immersion test is inconsistent and does not forecast the relative life of ordinary ferrous materials in the atmosphere. First failures of metallic coatings in tests also were noted. Gratifying progress in the investigation of steel embrittlement was reported.

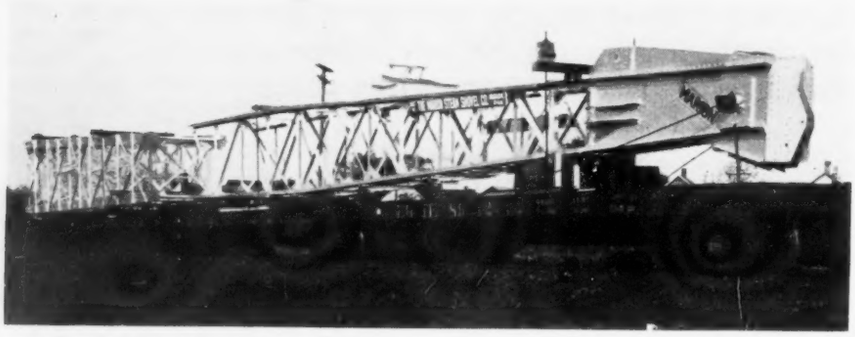
Increase in the concentration of dissolved oxygen in city water in general produced and increase in corrosion rate, and the weight losses approached a constant value with time according to data presented in a paper by E. C. Groesbeck and L. J. Waldron, bureau of standards, Washington. Leopold Pessel, Philadelphia, stated that sprayed lead coatings gave the best results in an accelerated corrosion test in a sulphur dioxide-carbon dioxide-air atmosphere. Various metals and alloys were subjected to similar conditions. S. M. Shelton, bureau of standards, Washington, in a paper on "Fatigue Testing of Wire" described a new device for determining the fatigue limit of wire in its fabricated form.

Material Specifications Provide Insurance Against Waste and Delay

DISCUSSING the economic significance of specifications for materials in industry, at a joint session of the American Society for Testing Materials and the Western Society of Engineers, John Brunner, Illinois Steel Co., Chicago, stated that between 5000 and 6000 specifications are in active use by his company and that about 10,000 possible specifications are in existence, applying to steel and steelworks materials. He also suggested that specifications should be written so that the steelmaker is given the choice of the most economical production methods for supplying the best product for a particular use.

P. Parke, Pullman Co., Chicago, as a user declared that specifications insure against waste and delay, insure uniformity of product from different sources, together with fair and unrestricted competition, and insure obtaining the proper material for a given purpose.

The purchaser's side of the use of specifications was succinctly described by J. W. Bancker, Western Electric Co., New York, who stated that producer, consumer and purchaser benefited. For the producer specifications gave an open market, stabilized processes, reduced costs, and led to a better understanding with consumers. The consumer obtained wider sources of supply, better control of product, knowledge of the properties of materials, and a definite ground for acceptance and rejection. The purchaser is enabled to specify exactly the material desired, which aids in receiving bids. Trade-name restrictions are removed to a large extent, and correspondence between producer and purchaser on suitability, quality, etc., of materials is reduced.



SHIPS ALUMINUM ALLOY BOOM FOR GIANT DRAGLINE EXCAVATOR

Four standard railroad cars were required for shipping the two sections of a large aluminum alloy boom to the McWilliams Dredging Co., Chicago, from the plant of the Marion Steam Shovel Co., Marion, O. The aluminum boom is the first to be installed and will be used on a dragline excavator doing flood prevention work in the Mississippi river valley. The aluminum alloy, weighing about one-third as much as steel, permits the boom to be built with a weight less than one-half that of a steel boom of equivalent length and strength, although at a greatly increased cost. Use of the aluminum boom is said also to allow reduced working weight, greater range and yardage capacity for the excavator

Activities Must Be Extended

The retiring president of the society, K. G. Mackenzie, stated in his presidential address that while the society has made reasonable progress, its scope must be extended to enhance its present high standing, and to bring wider recognition from producers and consumers of engineering materials. Also the standing committees must be increased as must the publications of the society. Due to the wide distribution of membership, more regional meetings are suggested as a means to promote closer co-operation of the members, and to promote greater activity on specific problems local to the particular region. He also stated that the society is faced with the necessity of holding semiannual meetings as it now has reached the point where it is becoming increasingly difficult to arrange sufficient sessions to cover the various fields.

C. H. Davis, American Brass Co., Waterbury, Conn., reporting for committee E-4 on metallography stated that a special committee has been appointed to obtain micrographs showing the spheroidization of high-speed steels, and that another committee is investigating the advisability of preparing grain size charts of standards for steel.

Publication of 132 separate articles, aggregating 1845 pages of technical material was required in preparing reprints for the meeting, according to figures presented by C. L. Warwick, secretary of the American Society for Testing Materials, and chairman of committee E-6 on papers and publications.

In presenting the report of the executive committee, Mr. Warwick said that the committee recommended a change of bylaws to provide for sustaining members with dues of $100 a year. With the formation of district committees in New York and Cleveland in 1931, the society now has eight such organizations. The Cleveland committee has requested a regional meeting in that city sometime during March, 1932.

CROSBY

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Knowing that concrete illustrations are far more powerful and convincing than words, we urge you to write for the 1931 edition of our booklet, "Metal Stampings." It is profusely illustrated with Sheet Metal Stampings and Pressed Metal Parts made by us for many different industries—in all kinds of metal and in all gauges.

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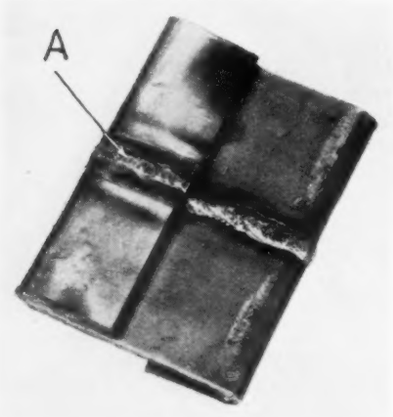
Good Weldability Spurs Use Of Chrome-Nickel Steel

BY G. VAN DYKE

Manager, Special Steel Department, Joseph T. Ryerson & Son Inc., Chicago

BECAUSE chrome-nickel steel containing approximately 18 per cent chromium, 8 per cent nickel and small amounts of manganese and silicon, lends itself readily to welding by the electric, gas or spot processes, production of the alloy has opened up a large field of application which was barred to other of the so-called "stainless" steels because they could not be welded readily. The 18-8 type is the most useful, not only because of its weldability but because it presents the maximum resistance to the greatest variety of corrosive attacks.



Two pieces of 18-8 *alloy bent flat after electric welding. Note at A the penetration of the weld on the reverse side*

Chrome-nickel steel is produced under several trade names, one of which is Allegheny metal, a product of the Allegheny Steel Co., Brackenridge, Pa. This article deals with the welding of this metal; however, the procedure is applicable to other alloys of the same type.

Care Is Necessary

The carbon content in the 18-8 alloy will vary from 0.15 to 0.06 per cent, depending upon the class of work for which it is to be used and also the method of manufacture by which it is to be fabricated. Corrosion resistance of an alloy depends not only on its composition, but also on the care taken in its manufacture and upon its structure. Bearing this in mind, it is important that the welding of the alloy should be done in such a way that neither the analysis nor the structure of the metal will be changed.

For this reason, the chemistry of the flame in gas welding is of vital importance. The first consideration in gas welding chrome-nickel steel is to obtain the proper mixture of acetylene and oxygen. If an excess of oxygen is used, it will burn up or oxidize a considerable portion of the chromium, and this not only changes the analysis of the metal but produces oxides of chromium which will cause the metal to boil and produce welds which are porous and of low corrosion resistance. If an excess of acetylene, which is a compound of hydrogen and carbon, is used, the molten metal will absorb a certain amount of the gas and the carbon content of the weld thereby will be raised. This increase in carbon content is extremely detrimental to corrosion resistance and ultimately produces a brittle weld.

Neutral Flame Desirable

A neutral flame with neither an excess of acetylene nor oxygen would be desirable, but in actual practice, regulators are not sufficiently accurate to produce a truly neutral flame. Therefore, the lesser of two evils must be chosen, and the flame should be adjusted so as to give a slight excess of acetylene which is indicated in the flame by short "feather tips" on the end of the combustion buttons.

The torch should be held as close to the metal as possible so as to push the flame down into the weld; and the rod should be held above the weld so that it will melt and drop down as the weld progresses. Puddling should be avoided, as it tends to produce a porous weld. If the flame is properly adjusted and sufficient heat is used, the chrome-nickel rod will melt freely and will drop down in clean drops.

For those who prefer to use a flux, the author recommends "Chromaloy" flux, a product of the Oxweld Acetylene Co., New York, which has a tendency to make the metal flow more freely and is of assistance in securing deeper penetration.

A tip one or two sizes smaller than would be used on the same gage of steel is recommended and in most cases, about 5 pounds pressure on both the acetylene and oxygen will be found sufficient. It is essential that accurate regulators be used so that a uniform mixture can be maintained continuously.

In electric welding the chrome-nickel alloy by the metallic arc process, we do not have to concern ourselves with flame chemistry as we do in gas welding. It is important, however, that the rod be of the proper analysis and that the coating on the rod be of such a character that it will produce sound welds, deep penetration and a bead of equal corrosion resistance to the parent metal.

Reversed Polarity Used

Reversed polarity should be used. That is to say, that the electrode should be connected to the positive pole of the generator and the work or ground connected to the negative pole. It is well to use rather less power than would be used on a similar gage of steel, although this is a point which is best worked out by each operator. Some operators can weld more rapidly than others and, therefore, can use a greater amount of heat.

A welding outfit should be provided which has flexible controls because variations in voltage and amperage are rather critical on this alloy. A short arc should be used partly because it will give a more uniform penetration and partly because with a short arc there is less

Oxyacetylene welded specimen of chrome-nickel steel showing effect of gas mixture on weld. Metal at X is made brittle by excess of acetylene; weld at Y is porous because of excess oxygen; good weld at Z made with correct acetylene-oxygen mixture

chance of the molten metal becoming oxidized and thus producing porous welds.

Backing up is to be recommended where possible, and in every case the operator should be provided with samples on which to experiment for power adjustment and arc length before he starts on the job.

Scale produced on these welds usually is heavy and hard, and it will be found helpful if the scale is ground off of the bead left by one rod before starting the continuation of the weld with the next rod.

Certain general principles concerning all types of welding on chrome-nickel steel must be observed. In the first place, when the metal is heated to any temperature in excess of about 500 degrees Fahr., it will discolor or oxidize on the surface. This oxidization must be entirely removed as it will rust rapdily, and the rust will spoil the appearance of what might otherwise be a good piece of work.

Oxidation can be removed by grinding, or can be taken off by the application of a mixture of one part of commercial nitric acid to one part of commercial hydrochloric acid. This acid mixture is extremely powerful and should be left on the metal only for a sufficient length of time to remove the discoloration, probably a few minutes. It is essential that every trace of the acid be removed from the metal first by washing with water, followed by a thorough washing with soap and water in which has been dissolved sal soda, ammonia or other alkali.

Guard Against Carbides

If the 18-8 alloy is to be used to resist severe corrosive attack, then it is essential that it should have the correct metallurgical structure. This means that the carbon should be in solution in the iron and not in the form of carbides which are chemical combinations of iron and carbon.

Unfortunately, it is true that metals of the 18-8 type, if heated to temperatures within the range of 550 to 1550 degrees Fahr., will during certain periods of time depending on the temperature, undergo a structural change in which some of the carbon will be precipitated from solution and be converted into an iron carbide, or perhaps an iron-chromium carbide. These carbides accumulate along the grain boundaries of the metal, and if the metal is then subjected to heavy corrosive attack such as nitric acid, hot salt water, copper sulphate solution and so forth, electrolytic effect is developed which will rapidly corrode and destroy the metal.

It is obvious that during welding the metal is at some point heated to these temperatures and, therefore, there is always an area adjacent to the weld which will have a lower corrosion resistance than the parent metal. This change of precipitation does not occur instantaneously, but requires time to develop. It is obvious also that because a 24-gage sheet will cool more rapidly than a ¼-inch plate, that precipitation is less likely to occur in light-gage work.

Experience has indicated that in applications such as soda fountains, restaurant equipment and so forth, corrosion is of such a mild type that carbide precipitation need not be considered. On the other hand, the calcium bi-sulphide solution used in the sulphite paper industry is so highly corrosive that all welds must be treated to eliminate carbide precipitation. Between these two extremes each application must be considered from the standpoint of the degree of corrosion and also the probability of carbide precipitation, which in turn is governed by the technique of welding and also the thickness of the parts which are welded.

Where carbide precipitation has occurred, it can be eliminated by heating the metal to a temperature of about 1950 degrees Fahr., which heating should be followed by a cooling sufficiently rapid to prevent further precipitation.

Metals of the 18-8 type when heated will expand about 50 per cent more than steel, and the heat conductivity is only about one-half that of steel. These two factors tend to make the metal warp more than steel and this point must be taken into careful consideration in all welding jobs. Jigs must be used to hold warpage within practical limits.

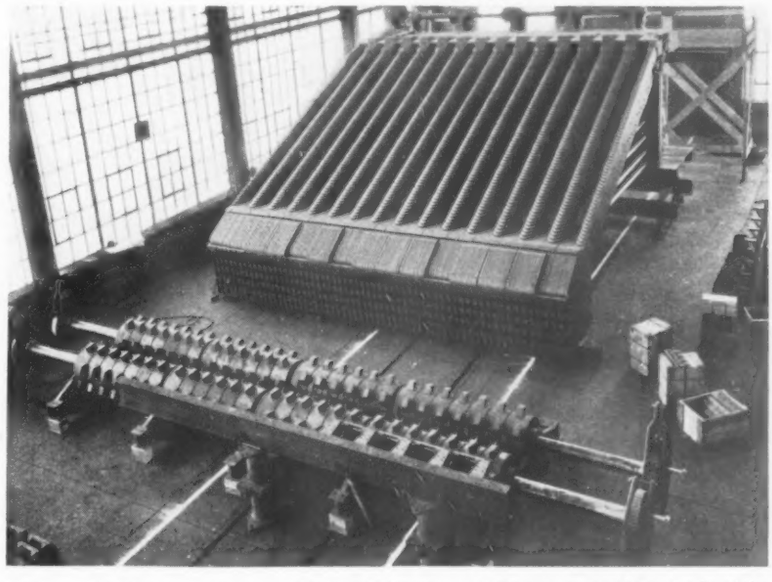
Welds in 18-8 alloy are extremely tough, and any welds made on metal about 10-gage or lighter should withstand bending flat on themselves without fracturing.

Steel Supporting Plates Used In World's Longest Stokers

INCREASED stoker length and use of highly preheated air was responsible for adoption of steel supporting plates in the stokers installed in the Hudson avenue plant of the Brooklyn Edison Co. These stokers, said to be the longest in the world, are of the Taylor type and were built by the American Engineering Co., Philadelphia. One of the units is shown in the illustration below.

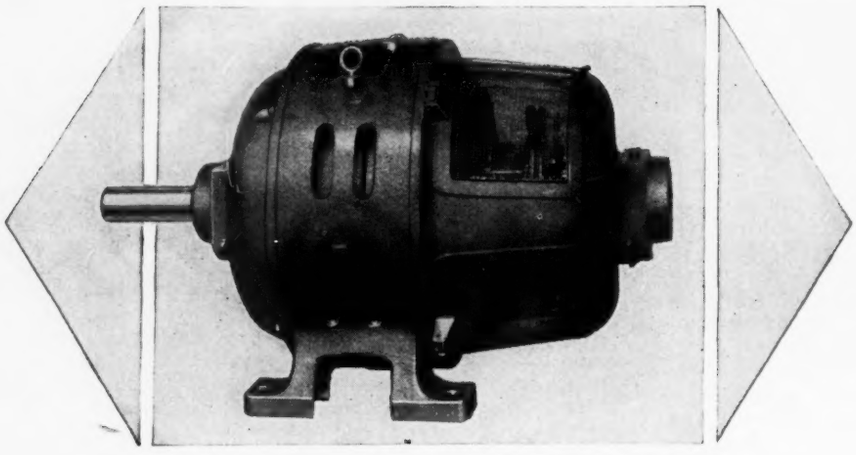
Cast-iron construction formerly was used for the supporting plates. At maximum capacity, these stokers will burn 28.3 tons of coal an hour. The plates extend the entire length of the stoker from the front wall to the bottom of the ashpit without intermediate supports. At their lower ends they are supported on roller bearings which accommodate themselves to expansion and contraction of the stoker with changes in temperature.

By eliminating the necessity for supports beneath the stoker, the steel plate construction presents no obstructions to restrict the free flow of air to all air-cooled parts.



Intermediate supports are eliminated when stokers are constructed with steel supporting plates

THEY KEEP A-RUNNING



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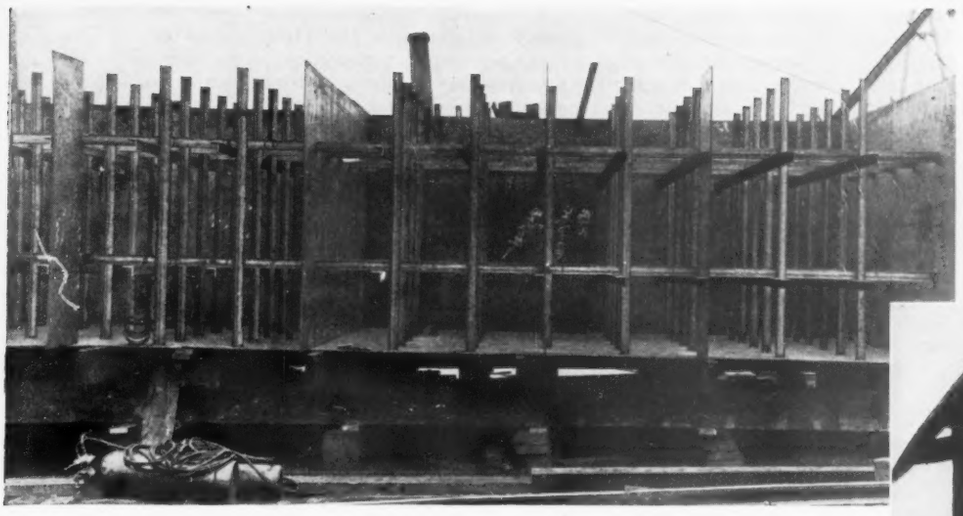
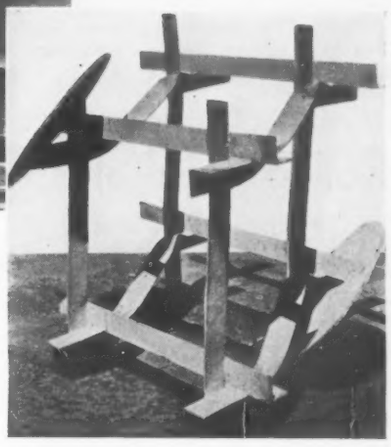


CELL type construction, shown at the left, lends itself readily to division of the hold for the transport of different liquids. Division plates merely take the place of angle members. In the specimen cell tested to destruction as shown below, all welds held without fracture



Welded Barges of Cell Type Hold Promise for Steel

BY H. R. SIMONDS
Associate Editor, STEEL

LAUNCHING last week of two new steel barges of welded cell design calls attention anew to this sturdy type of angle steel framework for tankers. The growing demand for means of water transport for gasoline and oil and the service success enjoyed by previous barges of this design indicate that here is a promising potential market for steel angles and plates. Last week's launchings were the twelfth and thirteenth of the so-called truss-weld barges to be built and are two of three barges built by the United Dry Docks Inc., New York, for the Atlantic Gulf & Pacific Co., of the same city.

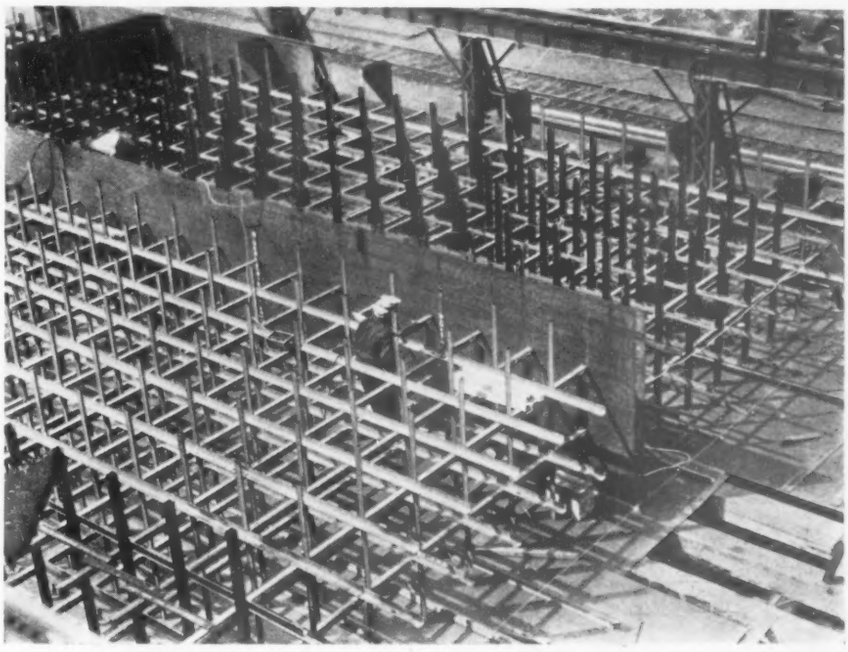
Honeycomb Construction

The method of construction, invented some years ago by J. Kjekstad, now welding consultant with the United Dry Docks Inc., perhaps is best compared to the construction of a honeycomb, although the barge cells are rectangular instead of hexagonal as in the comb. The cell structure is built up entirely of steel angles joined by lap welds. The angles run in three parallel series, one longitudinal, one lateral and one vertical and join at their ends the steel plates which form the bottom, sides and top of the shell.

Some of the advantages claimed for this type of construction are, greater strength, lighter weight per cubic foot of content, easier cleaning and lower cost. The chief difference between the truss-weld construction and the use of transverse or longitudinal framing is that all members of the truss-weld framing are compression and stress members and do not act as beams, thus avoiding bending moments.

Mr. Kjekstad started the cell type of construction in 1927 in the building of several large rectangular gasoline tanks to withstand high pressure. These proved to be so successful that he soon applied the same method to barge construction and the record of the barges so far launched has been unusual. Although subjected to severe treatment, including collision, grounding and superstructure fire, no leak whatever has appeared in any one of them and in the case of the one which had the fire, gasoline in the hold beneath the fire was uninjured.

The barges while originally designed for transportation of liquids are well suited for carrying heavy



This clearly shows the cell type of construction. All joints are lap welded

deck loads, because the weight of the load is transmitted directly to the bottom plates through the vertical members. The longest barge built by this method was an oil tanker 160 feet long with a capacity of 360,000 gallons. The dimensions of the individual cells and the size of the angles vary with the size and type of barge, but for the last two barges the cells were about 2 feet 6 inches square and 3 feet high, and this spacing created about 1000 cells in each barge. The angles were all 2½ x 2½ x ¼ inches and the structure as a whole was said to be able to withstand without distortion a load of 20,000 tons applied diagonally.

These last two barges are derrick barges and the other for the Atlantic Gulf & Pacific Co., which was launched May 19 was an oil barge and tender with a capacity of 33,000 gallons.

One of the accompanying illustrations shows a typical truss-weld cell tested to destruction under a diagonal load. A load of 10 tons was applied to this single cell before any deflection of the truss members was noted and when the structure finally failed the welds were still intact.

Rolled Steel and Welding Extensively Used in Building Industrial Cars

IN THE manufacture of steel cars for industrial purposes, Easton Car & Construction Co., Easton, Pa., is making increased use of welding. Some of the smaller cars are being constructed entirely of formed and welded plates and the experience to date is that the use of welding has improved appearance without impairing strength.

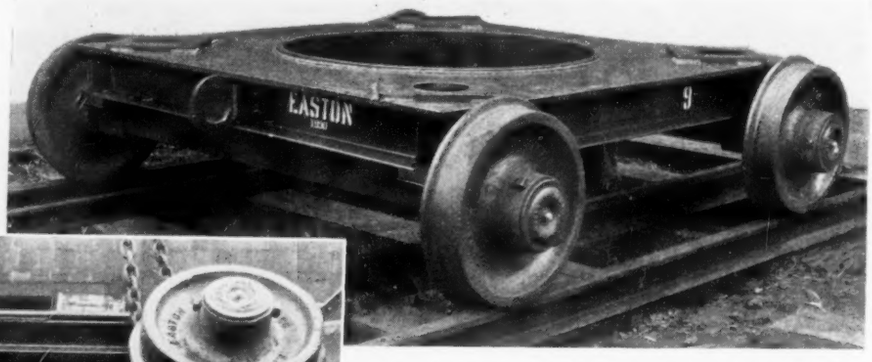
A large industrial car of special design which recently was completed at this plant is shown in the accompanying illustrations. This car is to be used as a transfer for the eccentric member of a gyratory ore crusher.

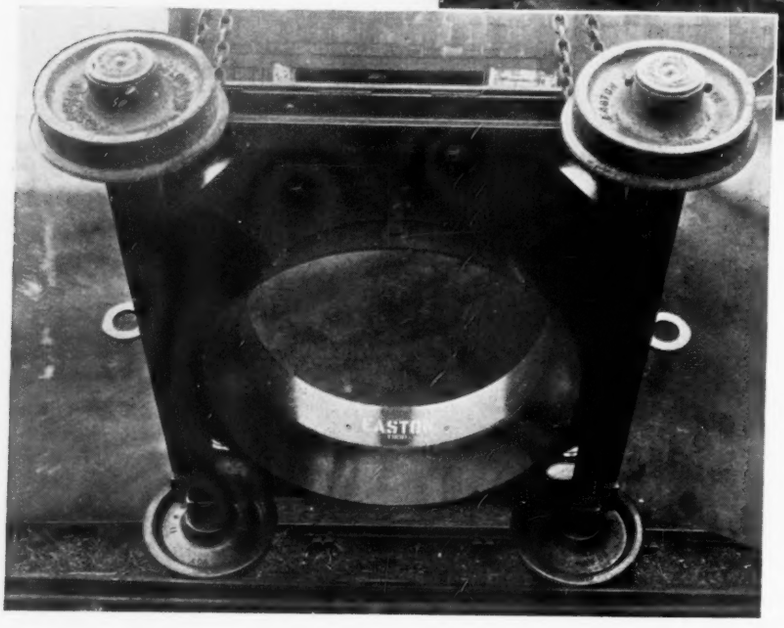
The car has been designed for use in handling the eccentric when it becomes necessary occasionally to rebabbitt this member. The eccentric has four dowels screwed into it so that the top of the transfer table is equipped with five sockets, one for the eccentric itself and the other four for the dowels.

A single steel plate was used for making the top of the car, the five openings being cut out with an acetylene torch. The top part of the bell in the large center opening was formed by rolling a single plate of the correct width. The apron of the bell was made by forming and welding three sections of plate. A simple device was employed to center accurately the openings for the four dowels. The four holes were cut oversize and four small plates were bored to the right diameter. These four plates after being accurately centered were welded to the top of the car. By this method a costly boring job was eliminated.

Aside from plates, steel channel sections were used in the construction. Regulation carbon steel axles were employed and the wheels are cast iron equipped with tapered roller bearings. Designed for carrying a load of 20 tons, the car weighs 4000 pounds.

The Easton Car & Construction Co. has organized its welding operations in a department which is devoted entirely to welding. When not engaged on welding of cars this department cuts and welds various standard car parts.





Car for transferring eccentric of gyratory ore crusher when rebabbitting is necessary is shown in these two illustrations. Welded construction is used throughout

Discovers Polishing Adds Strength to Steel

If the leaves of steel springs, such as those used in automobiles and trains, are machined and polished separately, the complete spring assembly will be from 20 to 50 per cent stronger than a spring of similar dimensions in which the leaves are left in the forged state.

This finding is disclosed by the government division of scientific and industrial research, London, England. The division found that the material in an unpolished condition was much weaker than when the skin had been removed by machining and polishing.

The differences in the strength of materials in springs has been shown conclusively, the report states, to be owing to variations in surface conditions, probably due to decarburization during heat treatment.

In view of the importance of the discovery the division is conducting more detailed investigation along the lines of developing practical processes which will allow full fatigue resistance of material to be obtained without the necessity for any initial machining operation.

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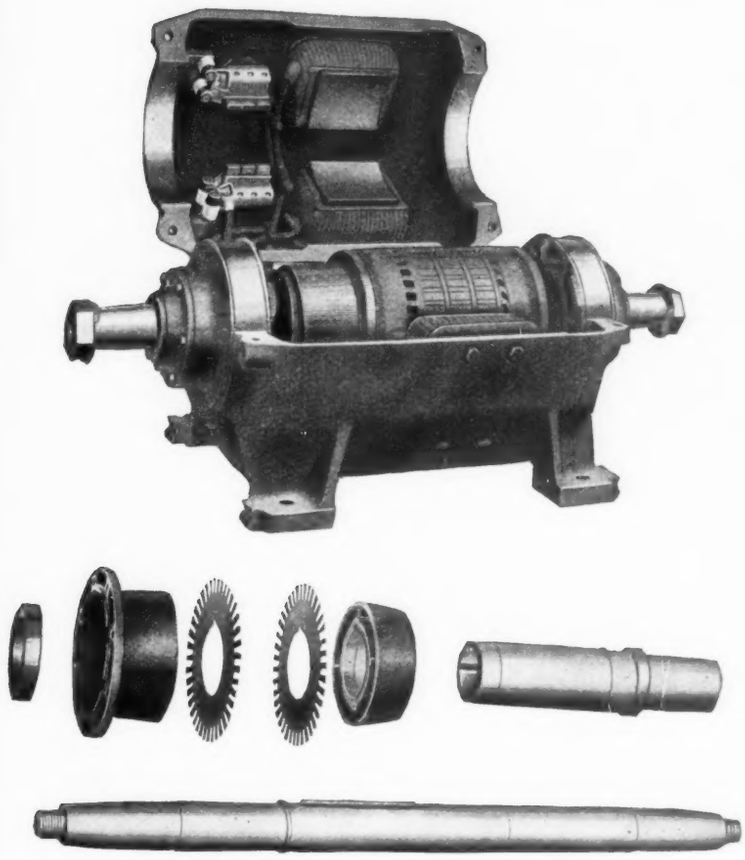
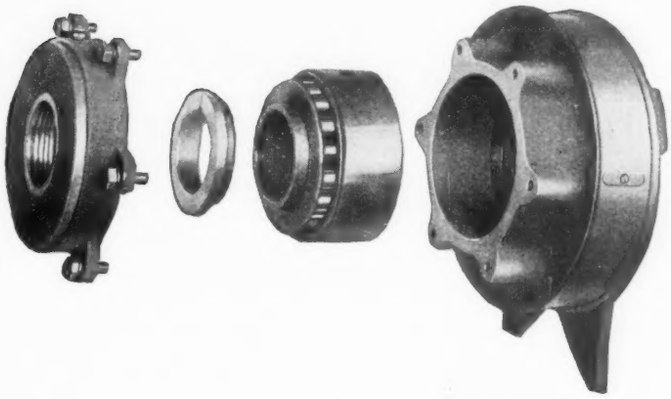
And Here's Further Proof



Disassembled view of Type MD motor armature core showing shaft, shrink ring, rear head, punchings, front head, and spider



Type MD frame head disassembled showing bearing cap, thrust plate, and roller bearing

TYPE MD — the steel mill engineer's motor — has a shaft of high-grade steel — accurately machined. An armature spider, machined from heavy seamless steel tubing, is pressed on this shaft and keyed. The entire armature with commutator is assembled on this spider, and thus the shaft can readily be pressed out without any disturbance or injury to vital motor parts.

The armature core of the Type MD motor is formed from steel laminations keyed to the steel spider and rigidly clamped between two malleable-iron heads. The front head rests against a shoulder formed on the spider. The rear head is locked in place by a steel ring, which is shrunk into a recess in the spider while the core is clamped under pressure in a hydraulic press. Thus the core cannot loosen under any circumstances.

Roller bearings are used in all MD motors, and are completely enclosed in a frame head which is *removable with the armature*. Hence, the bearings are protected from dirt if the motor is disassembled on the job. The construction prevents lubricant getting on the motor commutator or windings.

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233-11

GENERAL ELECTRIC

Contemplated Specification Changes Expected To Improve Malleable

BUSINESS practices, research and technical control in the malleable iron industry occupied the time of some 75 members of the Malleable Iron Research institute during its meeting in Chicago, June 26. Contemplated changes in specifications of malleable iron castings which will raise physical properties were reported by Dr. Enrique Touceda, Albany, N. Y., consulting engineer for the institute. He strongly advocated developing the higher properies, then creating a demand for the product upon the basis for these properties.

R. J. Teetor, Cadillac Malleable Iron Co., Cadillac, Mich., chairman of the research committee, reported on investigations now under way on the machinability of malleable iron and short-cycle malleablizing. Research was also proposed on the effect of pig iron upon certain troubles in making malleable castings.

Seven co-operative research projects now under way under the shop practice division of the institute were reported by H. W. Highriter, Cleveland, the group's shop practice engineer. These cover special irons, causes of frame structure, dimensional variations, improvement in melting control and various fundamental principles in design of castings.

Need for contracting engineers in customer organizations was stressed by R. N. Cole, Canton Malleable Iron Co., Canton, O., chairman of the western section activities on development of new uses. In many instances where strength, less weight, low cost, corrosion resistance or appearance are important, redesign is involved and the problem of the malleable manufacturer is to reach and educate the designing engineer.

With the readjustment of malleable iron in railway specifications, the institute has recently undertaken activity to promote railway sales. E. E. Griest, Chicago Railway Equipment Co., Chicago, chairman of the committee engaged in this work, reported that one step had resulted in obtaining some 2600 tons of railway car side stakes. He warned, however, against holding back on exploitation to await higher specifications.

A report upon the statistical service of the institute, outlining some new undertakings, was presented by Robert E. Belt, Cleveland, secretary-treasurer.

Creative Sales Work Needed

Herman H. Lind, general manager of the institute, Cleveland, stressed the courageous effort necessary to maintaining industry under present conditions. The malleable castings branch of the foundry industry necessarily is a service department to other industries. Under present conditions of competition, self-government through a trade association is doubly necessary. Mr. Lind stated that the need of creative sales work is particularly evident in the malleable industry. The effort to sell a meritorious product of service to a buyer always carries a profit to the vendor and this point particularly is imperative under present conditions. Planned and directed energy is necessary to sell.

SELF-CONTAINED MANIPULATOR REQUIRES NO TRACKS

Manipulating forgings under a steam hammer is simplified by a machine recently developed by Edgar E. Brosius Inc., Pittsburgh and shown in the accompanying illustration. Two sets of shock-absorbing springs provided on the articulated peel prevent shock from the hammer blow being transmitted to the machine

Bureau To Study Endurance Limit of Rail Steels

In an effort to learn more about the properties of rail steels, the bureau of standards, Washington, is undertaking an extensive investigation. One phase of the investigation is the determination of the endurance limits of this material, with the object of finding, if possible, to what extent the resistance of a rail to the repeated stresses to which it is subjected in service may be related to the nonmetallic inclusions or "dirt" and other unsound conditions in the steel.

The bureau states that to determine which method of test would be the most discriminating in showing the effects of such inclusions and other unsound conditions in the steel upon the endurance properties, comparisons were made between the rotating beam and the axial-loading methods for the determination of endurance limits. In connection with this test the bureau comments as follows:

"The materials used for the comparative tests were an open-hearth iron containing 0.02 per cent carbon; wrought iron in three stages of refinement by rolling; three plain carbon steels containing 0.45, 0.47 and 0.87 per cent carbon, respectively; and each tested in both the annealed and in heat treated conditions; and four rail steels.

"In no case was the endurance limit determined by the axial loading method greater than that determined by the rotating beam method. For the 0.45 per cent carbon and the 0.87 per cent carbon steels in the heat treated condition the endurance limits were practically the same by both methods of test. The indications, in general, were that for a nonuniform material the endurance limit in axial loading is lower than it is when determined by the rotating beam method."

Inspection Methods Listed

Tentative methods of procedure for the inspection of structural steel for buildings and bridges; tee and girder rails and accessories; steel plate pipe; hot-rolled or drawn steel and iron pipe; boiler and firebox steel; cast iron pipe and specials; cement; concrete; and timber, poles, piles and ties, have been issued in a 30-page booklet recently published by the National Engineering Inspection association. The methods have been set up as tentative in order to invite suggestions which will lead to the adoption of permanent methods of procedure.

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

Welding Saw Steel

Procedure for joining band saws by the oxyacetylene process, described in Oxy-Acetylene Tips, June 1931, *p.* 107, 2 *pp.*, 3 *illusts.*

An important factor when welding saw steel is not to overheat the metal. To prevent this, a small spot, not to exceed ⅜-inch at a time, is welded and the weld forged as the work proceeds. By this means overheating is avoided, and the metal is toughened by hammering while at the right temperature. A weld thus treated will show a fine grain structure similar to the original saw steel, and is tough and flexible, whereas, if overheated or not forged, it is brittle and of low tensile strength. Repeated heating and cooling of the weld causes hard spots to occur which lead to cracking. Immediately after the weld is completed it should be heated to a dull red and allowed to cool slowly. This leaves the section uniform in hardness but still too soft. It should be cleaned with emery, and a slow heat applied until a straw or blue color is obtained, and then quenched in oil or water. This makes the weld flexible but does not add to its strength. A method is described for replacing a broken band saw tooth, welding band saw cracks, making a buttweld and repairing a rim crack.

—STEEL, 7-2-31

Ladle Refractories

Qualities of refractories and perfection of their design for stoppers, nozzles and sleeve brick for steelworks ladles, discussed by R. H. Stone, in Blast Furnace and Steel Plant, June 1931, *p.* 865, 5½ *pp.*, 3 *illusts.*

Numerous designs of stopper heads, sleeve brick and nozzles are explained in detail. Natural graphite with suitable clay binders seem to be the best materials for the stopper head, considering the physical and chemical properties and cost. A good graphite stopper head is dark gray or black, but a light-colored head should not be regarded with suspicion unless the color extends into the body of the stopper as this is an indication that the graphite has been wholly or partially oxidized in firing. The magnesite nozzle used in European practice has a tendency to freeze the steel. Experience has shown that the best nozzle brick are made of a third grade fire clay with a softening point of 2600 to 2700 degrees Fahr. When used in conjunction with a good graphite head the best combination is obtained to give successful control of steel pouring. Clay nozzles usually will show an increase in diameter of the hole of 25 per cent by the end of the pour. This is desirable because a fairly constant rate of flow of steel is maintained as the level of steel in the ladle falls. Details associated with the assembly of the stopper head are depicted and explained.

—STEEL, 7-2-31

Testing Steel

Methods of testing steel for forging, by Adam M. Steever in Metal Progress, June 1931, *p.* 45, 3 *pp.*, 4 *illusts.*

Three factors affect the forging quality of steel, namely, chemical composition, surface condition and its ability to flow freely in all directions without rupture under pressure or impact. The author describes test methods employed by a large middle western forging interest. Incoming steel is piled in such a manner that drillings can be taken with a portable electric drill. As the bars are drilled they are marked serially for identification, each heat of steel being kept separate. One ounce of drillings is taken from five bars at random from each heat for complete chemical analysis.

Pickling tests are of two classes: For surface defects such as seams, laps and slivers; and for internal defects such as porosity, pipe, segregation, etc.

—STEEL, 7-2-31

Cutting Materials

Development of cutting tools and their construction, discussed by A. G. Baumgartner, in American Machinist, June 18, *p.* 929, 4 *pp.*, 4 *illusts.*

Shanks for cemented tungsten carbide normally are larger than corresponding high-speed tools. Angles on cemented tungsten carbide tools are less acute and result in greater pressure at the tool tip. Deflections with cemented tungsten carbide tools, because of the nature of the cutting material, should be less than with high-speed steel. The insertion of the tip appreciably weakens a shank of normal cross section. Compensation for these factors is obtained by increasing the cross section of the shank. The proportions of the backing for this cutting element, whether in the form of a tool shank or any other application, should be as generous as feasible. Nickel steel serves well as a shank. The author discusses in detail the methods of attaching. Overhanging in cemented tungsten carbide tools is to be avoided, as also are sharp angles. Sharp corners on tools also are to be avoided because of their susceptibility to chipping and inability to withstand shearing forces.

—STEEL, 7-2-31

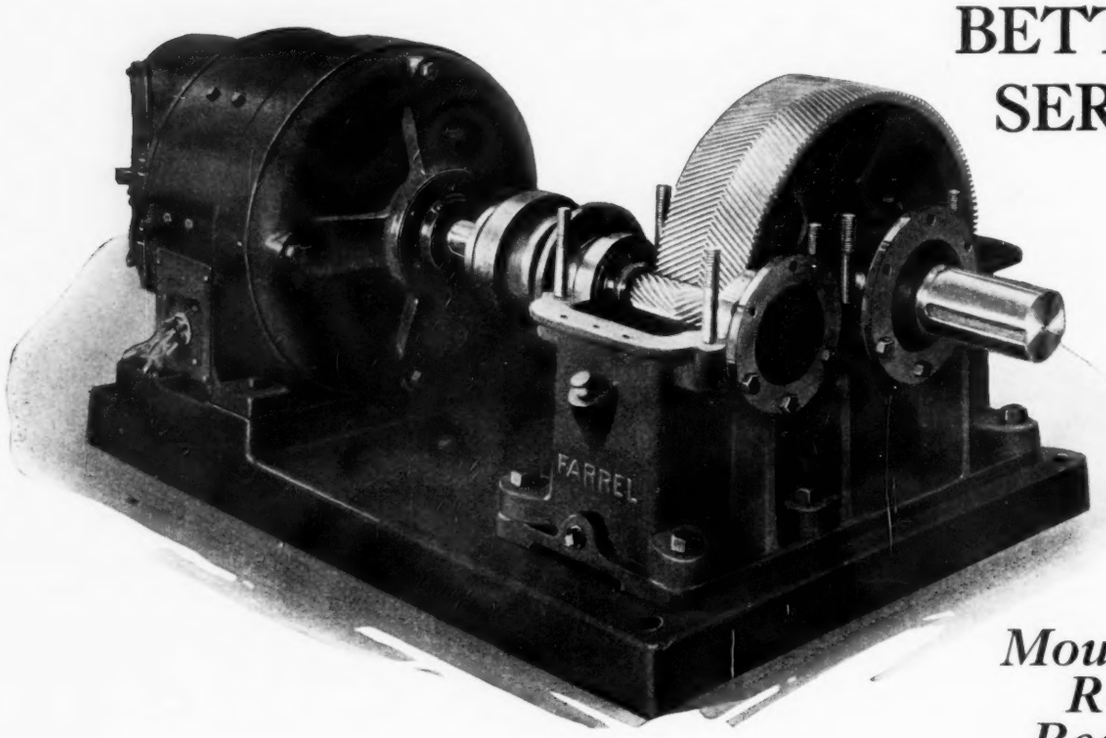
Heat Treating Tool Steel

Proper forging and heat treatment of high-speed tool steels, discussed in Black and White, July 1931, *p.* 15, 4¼ *pp.*

Composition of this grade steel, standard heat treatment and method of forging are presented in the early part of the article. The practice of allowing the forged blank to cool in air and then subjecting it to hardening without an intermediate annealing is greatly to be deplored and is probably responsible for many tool steel failures, either in the hardening operation or in use. It is essential in annealing that the steel be slowly and uniformly heated to the proper temperature, held at this temperature long enough for the structural changes to take place, followed by equally slow and uniform cooling. Most high-speed steels are quenched in oil, occasionally in air. Generally, these steels will harden satisfactorily in almost any quenching medium but the use of a high-grade quenching oil gives the most uniform results. Some dispute has arisen over the danger of permitting high-speed steel to cool to room temperature before tempering. As a safe procedure, it is recommended by most authorities that the tools be permitted to cool sufficiently so that hardening goes to completion, but not below the temperature of boiling water. This is added insurance against cracking.

—STEEL, 7-2-31

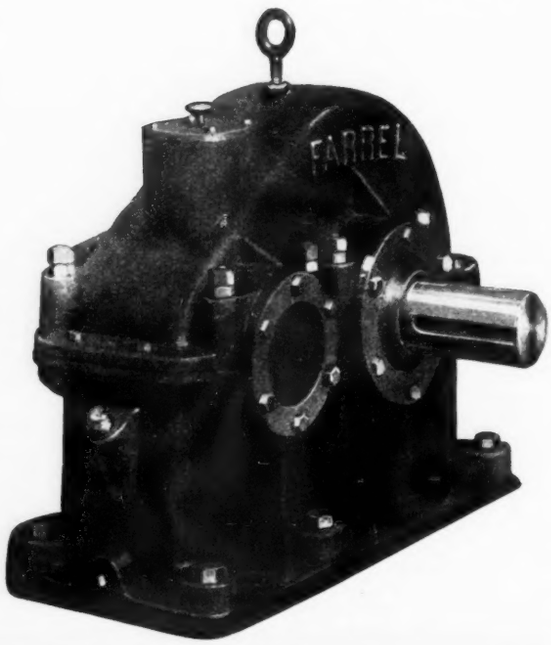
IN FARREL-SYKES SPEED REDUCERS THE MEASURE OF VALUE IS BETTER SERVICE



Mounted on Roller Bearings

In the heavy duty field of industry machinery must be designed and built to withstand the most severe usage. Violent shocks and overloads are encountered at unexpected moments, and unless these factors are counterbalanced with strength in construction, trouble is bound to follow as a consequence.

FARREL-SYKES SPEED REDUCERS are built with great strength and rigidity. Single, Double and Triple reduction units are available in a series of over eighty different sizes, transmitting from ONE to FIVE THOUSAND HORSE POWER, ratios up to 300/1. A series of standard baseplates for each size of unit is also available, and these baseplates may be changed to suit different types of motors.



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Machine Tools and Plant Equipment

«Without machine tools modern machinery could not be built.»
—Joseph W. Roe

Manufacture of Modern Machine Tools Demands Finest Modern Equipment

SWEEPING changes in machine tool design, involving as they do fundamental changes in the technique of the industry, are bringing about what truly can be called a revolution—not only in the shop, but also in every other department of this business, including the merchandising end. Much is being said about the effect of new machine tools upon the metalworking industry in general, but little has been said about the effect upon the plants in which the new tools are created. Possibly no great amount of thought has been given as yet to this situation, production of the new designs not having gotten under way to any considerable extent. The time will come, however, when this situation will force attention.

Interchangeability

Although the primary reason for existence of modern production machine tools is interchangeable manufacturing, it has not been so many years that machine tools themselves could be classified as interchangeable mechanisms. In those days of not so long ago, machine tool plants were conducted to a large extent along "handicraft" lines, operations such as chipping and filing, "drilling on" brackets and other details, and tedious hand scraping operations being much in evidence. In other words, machine tools were "built," rather than "manufactured." Methods of this kind still are followed on new models before large scale production is undertaken, this undoubtedly being the status at the present time of many of the numerous new and improved machine tools.

When this production does get under way, a lot of new conditions are going to be faced. Frames of increased size and weight are going to tax the capacity of the old material handling equipment and even of the shop floors. Some of them will prove to be too big for the older boring mills, planers, etc. to handle. Unfamiliar operations, the precision boring of deep hydraulic cylinders for instance, will face production departments. Steel castings replacing gray iron, and alloy steel shafts replacing machine steel shafts, will slow down older equipment below the point of efficiency. Limits of accuracy on new details, expressed in ten thousandths of inches, will be beyond the scope of equipment designed to hold limits expressed in thousandths of inches. Unusual welding operations will be called for, including those on the new jigs and fixtures to be used in attaining economical production of the new models.

Self-Perpetuation

It aptly has been pointed out that machine tools are the only machines which have the power to reproduce themselves. This biological parallel can well be carried further by pointing out that production of improved lines of precision machine tools will demand the finest of plant equipment just as surely as production of an improved breed of cattle depends upon the finest of parent stocks.

There also is a significant sales angle to this situation. Machine tool builders are vigorously advocating replacement of obsolete equipment in the plants of their customers and prospects, while the ratio of old equipment to new in their own plants is notoriously high. Campaigns of this kind cannot be wholly convincing so long as customers and prospects can retaliate by saying, "Physician, heal thyself."

◆

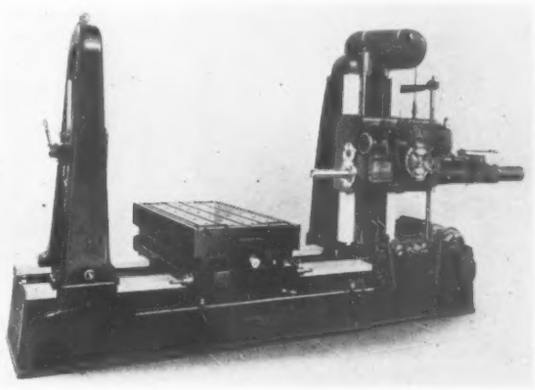
Secondary Spindle Is Used In New Boring Machines

Giddings & Lewis Machine Tool Co., Fond du Lac, Wis., announces further additions to its line of precision horizontal boring, drilling and milling machines in table, planer and floor types. The same principal units are used in all three, as in the case of the larger machines described on Pages 65 and 66 of the June 4, 1931 issue of STEEL. The accompanying illustration shows one of these new machines of table type.

Like the larger machines, these have a conventional main spindle, and also a high speed auxiliary spindle. The main spindle, is 3 inches in diameter and has 36 speeds in fine geometrical progression from 8.3 to 500 revolutions per minute.

The auxiliary spindle is 2 inches in diameter and is mounted within the back gear quill of the main spindle. It has 36 speeds, ranging from 25 to 1500 revolutions per minute. Herringbone drive gears, preloaded combination radial and thrust ball bearings and a massive housing insure smooth operation of both spindles.

Eighteen feeds to either spindle are obtainable through an accessible unit built on a front cover plate of the head. A rotary lever with dial indi-



Giddings & Lewis dual spindle boring, drilling and milling machine, one of an improved line capable of handling a wide range of medium size precision work on a production basis

cator controls nine changes, and by throwing a back gear lever, a second series of nine changes becomes available. A third lever gives change in direction of feed. Pick-off gears in the feed train give any desired positive lead. Slow hand feed to either spindle is attained through a wheel at the upper left hand corner of the head.

The spindles have rack and pinion feed, power or slow hand feed being thrown out automatically at each end of their traverse. Feed is applied to either spindle by pulling out the quick motion turnstile handles. An automatic depth gage can be set to throw out the feed at any point within 6 inches of spindle travel.

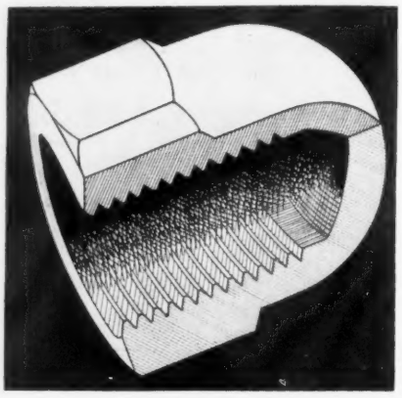
Feeds to the main spindle range from 0.007 to 0.375 inches per revolution, those to the auxiliary spindle range from 0.002 to 0.125 inches per revolution, milling feeds range from 0.8 to 40 inches, and rapid traverse to all elements is 120 feet per minute.

Within the front head end of the bed is a separate feed unit for moving the various elements of the machine. Levers are located for operating convenience, and feed to any element is engaged by throwing its control lever in the desired direction.

Specifications Are Flexible

Machines with vertical adjustment of head on column up to 48 inches can be furnished in all types. Maximum distance from spindle nose to end support on table type machines can be made as long as required, maximum table size being 36 x 72 inches. On the planer type machine tables can be of any size within reason. On the floor type, travel of column on its runway and width and length of floor plate can be made to suit requirements. The machines are driven by a 15-horsepower motor.

Tumbling pickling machine designed by Bronze Die Casting Co.



One of the line of one-piece acorn nuts manufactured by Acorn Nut Co.

◆

One-Piece Acorn Nuts Are Tapped by New Method

Acorn Nut Co., 901 Hofmann building, Detroit, has put on the market a line of acorn nuts which are manufactured by an improved method, enabling them to be sold at a moderate price, which should encourage their general use in hiding unsightly bolt ends on industrial machinery. One of these nuts is shown in section in the accompanying illustration.

These nuts are machined from solid bar steel and an improved method of blind tapping insures threads of extreme accuracy, tapped to a considerable greater depth than is possible by older methods under production conditions. Being of one piece, the nuts possess maximum strength. They have a durable finish.

◆

Pickling Machine Embodies Acid-Resisting Parts

Bronze Die Casting Co., 1836 North Franklin street, Pittsburgh, has developed a tumbling pickler in which effective use is made of an acid-resisting metal developed by this company, thereby eliminating accidents and replacement of parts. One of these picklers, in which is suspended a load of rod, is shown in the accompanying illustration.

The tank itself can be constructed either of reinforced concrete, or wood fastened with acid-resisting bolts. The mechanism is motor driven through a reduction gear connected to the power shaft, which has a speed of ½ revolution per minute. As the acid-resisting chains are moved slowly by the power shaft, the load of rod, pipe, flats, angles, etc. climbs and drops back, this action speeding up the acid action, thereby shortening the pickling time. The company claims that a satisfactory job can be done in 15 to 20 minutes.

Small parts to be pickled are placed in special acid-resisting barrels, perforated to allow free flow and flanged to fit the chains. These barrels roll on the chain loops as the mechanism is operated, thereby agitating their contents thoroughly in the solution.

◆

Spot Welder Is Developed For the Small Shop

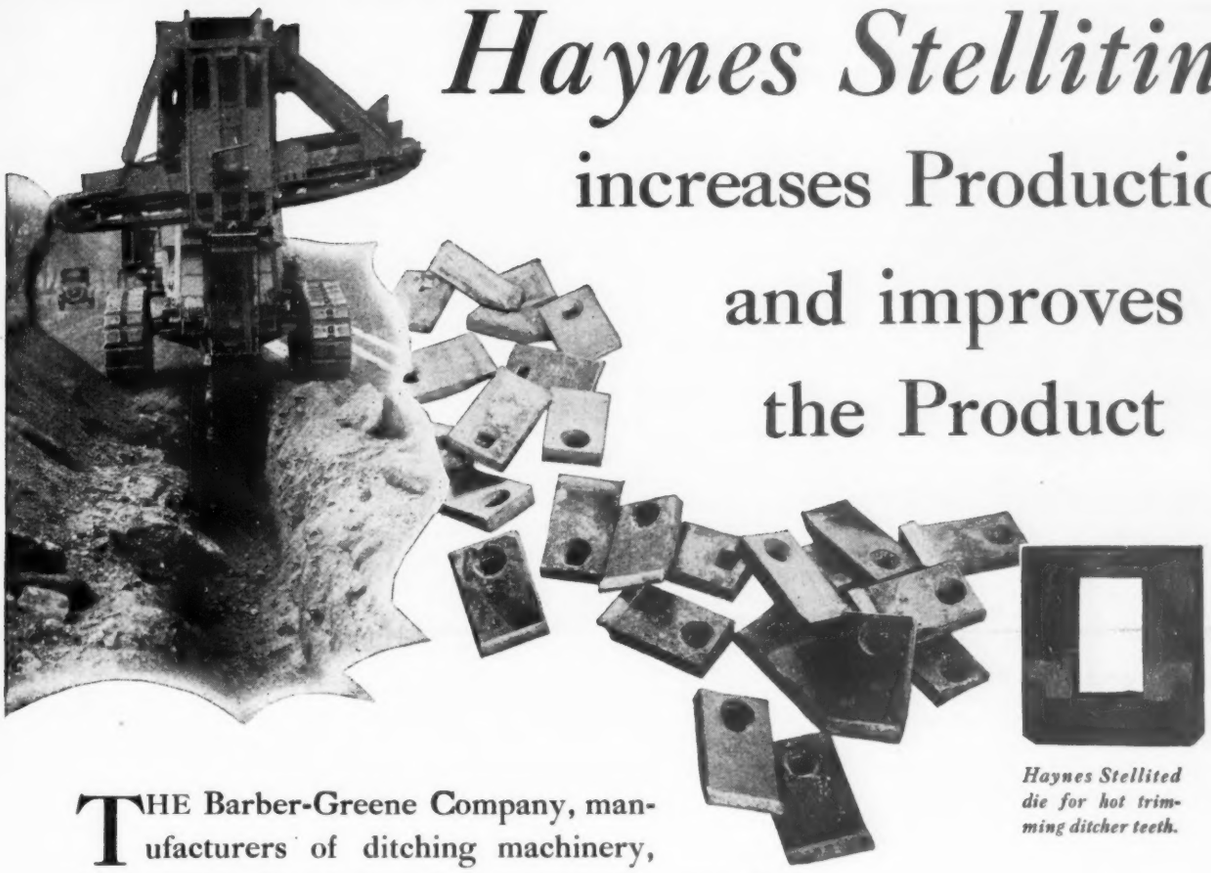
American Electric Fusion Corp., 2610-2620 Diversey avenue, Chicago, has turned its attention to the development of an electric spot welder especially intended for use in sheet metal working shops, by tinsmiths, etc. The result is a machine with sufficient capacity to handle 16-gage galvanized steel, which can be sold at a price will within reach of owners of small shops. One of these welders is shown in an accompanying illustration.

The company has set up for large scale production of these welders, and in order to reach the prospective users, a number of distributors have fitted up salesmen's cars with these units so that the advantages of spot welding can be demonstrated effectively by a widespread canvass of small shops.

In addition to such uses, the machine is recommended by the builder

Spot welder designed for sheet metal by American Electric Fusion Corp.

Haynes Stelliting increases Production and improves the Product



Haynes Stellited die for hot trimming ditcher teeth.

THE Barber-Greene Company, manufacturers of ditching machinery, Haynes Stellite their ditcher teeth because they know this red-hard alloy assures four to five times longer life.

This extreme wear-resistance is also strikingly demonstrated in the production of this part where Haynes Stellited dies used for hot trimming ditcher teeth turn out 55,000 pieces without regrinding.

Haynes Stellite resists wear even at high temperatures because its hardness is an inherent property and not the result of heat treatment. It is as hard at 1800 deg. F. as it is when cold.

Haynes Stellite welding rod is easily applied with the oxy-acetylene blowpipe. There is an advantageous use for it wherever ordinary metal wears out.

Write today for details.

HOW YOU CAN TEST RED HARDNESS

Deposit Haynes Stellite on a steel coupon. Allow it to cool; then try to file it. You will note that it is too hard to file.

Now heat it red-hot with an oxy-acetylene blowpipe and try to file it at this temperature. You will still be unable to do it. Haynes Stellite stays hard even at red heat.

What other metal could pass this test?

HAYNES STELLITE COMPANY

Unit of Union Carbide and Carbon Corporation

UCC

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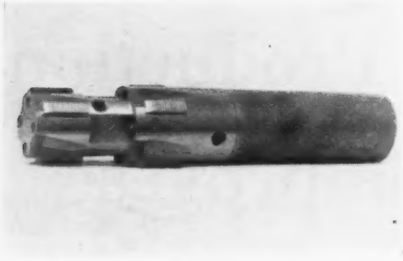
Haynes Stellite alloys are available also at all of the 42 apparatus shipping points of The Linde Air Products Company

HAYNES STELLITE TRADE MARK

A red-hard, wear-resisting alloy of Chromium, Cobalt and Tungsten

A-1712



Combination solid adjustable tap designed by Geometric Tool Co.

for use in large plants on the making of sheet metal guards and other odd jobs of that character.

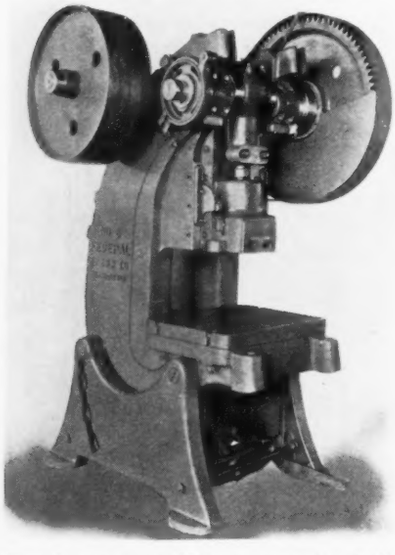
◆

Large Capacity Presses Are Accurate and Convenient

Federal Press Co., Elkhart, Ind., announces a new line of presses of 65-ton capacity, built both in flywheel and geared models. The accompanying illustration shows one of geared type.

These machines have been designed to bring to large presses the same accuracy and ease of operation characterizing smaller presses. Tapered roller bearings are used in the mounting of the backshaft on the geared models. The back gear brackets are cast integral with the frame, and they are bored at the same time as the main brackets, thus achieving inherent shaft alignment, which eliminates bearing trouble.

The flywheel-type press weighs approximately 9000 pounds, and the back geared-type weighs approximately 11,300 pounds. Both are equipped with a reclining bracket operated from the front. This is removable, so as to leave clear floor space for tote boxes. A nonrepeat tripping mechanism developed by this company is included as standard equipment.



Punch press of 65-tons capacity built by Federal Press Co.

◆

Tap Threads Two Holes in Time Required for One

Geometric Tool Co., New Haven, Conn., recently has developed a time-saving thread cutting tool known as a combination solid adjustable tap, one of the many forms of which is shown in the accompanying illustration. By its use, two concentric bores can be tapped in the time ordinarily required for the longest single operation.

In the combination illustrated, two sets of ground thread chasers are arranged to tap diameters of 2 1/16 inches and 2 11/32 inches to 14 pitch U. S. standard thread form. The two tapping elements are independent of each other, in that each has separate size adjustment control, which is simple and provides quick, positive locking. Thus two holes can be tapped, each to required decimal size, or when desired the front element can be removed and the rear element employed alone as an ordinary solid adjustable tap.

The bodies of the tools are made of alloy steel, hardened and finished all over by precision grinding. The only other parts are the cap, plunger and adjusting screws. Chasers either of ground thread or machine cut type can be furnished in U. S., American Briggs or V-forms. Tapped holes must be of same pitch and preferably should go through. While the tap shown is for use in a chucking machine, shanks also can be provided to fit other types of machines.

◆

Welding Electrode Permits Manganese Steel Repairs

Lincoln Electric Co., 12818 Coit road, Cleveland, has developed a new electrode which, in conjunction with the shielded arc welding process on reversed polarity, can be utilized to build up worn manganese steel castings. The maker claims that the process not only is a simple one, but also that the structure and wear-resisting qualities of the deposited metal equal those of the casting itself.

The electrodes contain from 11 to 15 per cent of manganese steel and form a deposit which is air toughening, thereby eliminating the necessity of quenching. A heavy extruded coating provides the shielded arc, thus allowing the transfer of metal to take place under nonoxidizing conditions. This coating also insures minimum of arc disturbance and boiling in the crater, and provides a layer of easily removable slag which further protects the weld from the harmful effect of the air. It is pointed out that this electrode causes the weld to remain in the austenitic state, even on slow cooling.

The electrode is furnished in 1/8, 5/32, 3/16, and 1/4-inch sizes, in standard 14-inch lengths.

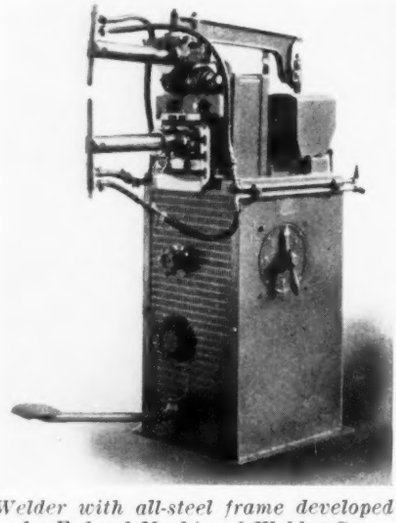
◆

Low Price Spot Welder Is Built of Welded Steel

Federal Machine & Welder Co., Dana avenue, Warren, O., has put on the market a line of low priced spot welders featuring all-steel welded construction. One of these machines is shown in an accompanying illustration.

These welders are of fulcrumed swinging arm design and can be furnished either for foot or power operation, or both. With minimum throat and maximum transformer the manually operated machines will weld together two pieces of clean machine steel 7/32-inch thick. Under the same conditions, the power driven machines, operating at slow speed, will weld two pieces of 5/32-inch steel. Their field of greatest effectiveness is on material ranging in thickness from 20 to 11 gage.

The standard width of these welders is 18½ inches, depth is 20 inches not including arms, and height overall is 50 inches. Eight depths of throat are available, as required,



Welder with all-steel frame developed by Federal Machine & Welder Co.

ranging from 10 to 24 inches. With a multispeed motor, speeds of 60, 90, 120 and 180 welds per minute can be attained, while with a constant-speed motor the fixed speed is approximately 100 welds per minute. The entire motor drive and control is mounted on a special back plate which can be installed without change on any foot operated machine.

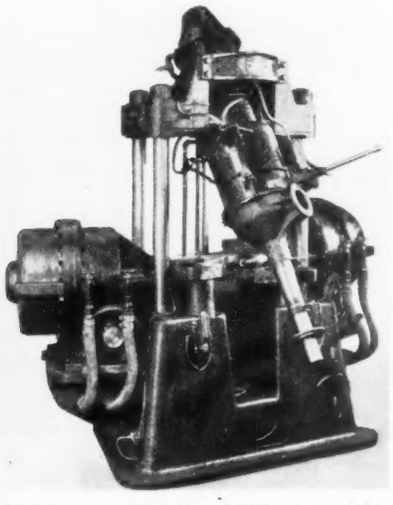
Secondary voltage is regulated accurately by a special 8-step regulator mounted on the side of the machine. An extra heavy trip switch is mounted on the back of the machine and is actuated mechanically by the operation of the machine itself. It is adjusted and timed by simple adjusting nuts. The arms are of hard drawn copper rod, this being 2 inches in diameter.

◆

Riveting Machine Designed For Rear Axle Assembly

Hanna Engineering Works, 1765 Elston avenue, Wicker Park station, Chicago, has developed a multiple riveting machine for use in assembling real axle housings of motor trucks. This machine is shown in the accompanying illustration, in which a housing assembly is clamped in loading position.

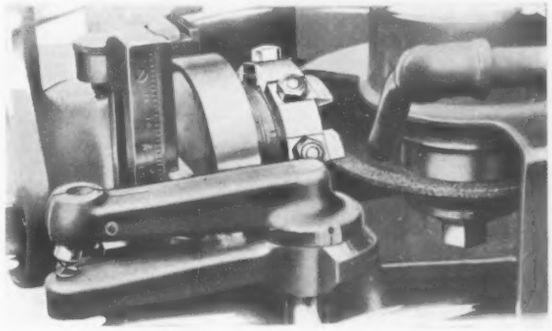
The clamps are power actuated. From the position shown in the illustration, the work is swung into alignment with the rivet dies and locked by power. Rivets are inserted in the work from the outside and headed on the inside. Four rivets for attaching the axle tubes to the differential housing are driven simultaneously, following which the assembly is indexed and last four rivets are driven.



Automatic multiple riveting machine built by Hanna Engineering Works

A predetermined pressure is exerted equally on all the rivets. The expanding heading mandrel compensates automatically for variations in the inside diameter and for eccentricity of the axle tubes. Power actuation expedites loading and unloading.

Grinder built by Gleason Works to insure correct and economical sharpening of right or left hand spiral bevel gear cutters up to 6 inches in diameter



◆

Grinder Sharpens Cutters For Spiral Bevel Gears

Gleason Works, 1000 University avenue, Rochester, N. Y., has developed a machine for the correct and economical grinding of cutters used on spiral bevel gear generators, both right and left hand, up to and including 6 inches in diameter. The accompanying illustration shows the operating section of this machine, with a cutter being ground.

The frame is a neat cabinet casting which brings the operating section to convenient height for a standing operator. The 1-horsepower driving motor is housed in this base, ready access being had to it through a large door. The vertical grinding spindle is driven by a quarter-turn belt completely enclosed by the head casing.

Spindle and Wheel Details

The grinding spindle runs on precision ball bearings and carries a standard 8-inch diameter, 1¼-inch bore saucer wheel, which is easily dressed to the correct angle by a diamond held in a fixture.

The cutter is mounted on a horizontal spindle which is adjustable to give any desired angle. The work spindle head is swung to and fro, thereby moving the cutting face of the blade across the fact of the cutting wheel. Proper setting is attained by convenient hand nuts, in conjunction with a simple gage. Constant contact between work and wheel prevents burred edges and a generous flow of coolant prevents burning.

One main oil cup supplies oil to the grinding spindle bearings, its quantity being checked through a window in the front of the spindle housing. Ider pulleys, coolant pump and motor have grease lubrication and require attention only no more frequently than once in six months.

Standard equipment includes: wheel dresser (without diamond); indicator and holder for checking blade heights; cutter holding equipment; and fixe index plates. The machine occupies 31 x 39 inches of floor space and has approximate net weight of 1500 pounds.

Metalworking Machinery Gained in Export Value

Washington—Industrial machinery division, department of commerce, announces that exports of industrial machinery from the United States during April were maintained at approximately the level which were established during the preceding months of the present year.

Compared with April, 1930, when the American machinery industry was still enjoying the effects of an exceptional demand abroad for American equipment, the total for April shows a decrease. However, this drop is probably not so marked as would at first appear, since the figures are based on current values only. Due to price declines in certain instances, the quantity of goods involved presents a more satisfactory situation than that indicated by a casual glimpse of the value returns.

Since the beginning of the present year, the monthly totals for machinery exports have fluctuated at figures ranging from $12,000,000 to $14,000,000, which in view of present conditions, can be regarded as fairly substantial business. Power driven metal working machinery to the value of $2,473,122 was exported in April, 1931, against $4,297,211 wrth in April, 1930. The export value of this class of machinery in March, 1931, was $2,159,472, which clearly indicates a favorable trend this spring.

20,000 to 30,000 —In 9 Hours!

In the plant of the National Telephone Supply Company, a Nilson Automatic Four Slide Ribbon Stock and Wire Forming Machine makes twenty to thirty thousand (according to size) telephone cable rings per nine hour day.

This combination power press and four-slide machine gives rapid production of products which have heretofore been made in several operations on a power press. It takes the metal from the coil, straightens, feeds, pierces, embosses, stamps, cuts off and forms.

While it has been designed primarily for handling coiled ribbon stock, it is also highly efficient in forming wire.

Built on the same general plan as our regular standard four-slide machines. Forming tools and standard attachments such as secondary cut-off, form lifter, and pin puller are interchangeable with those of our standard four-slide machines. The open construction of the press makes it very convenient for the changing of or the adjusting of the tools.

Bulletin No. 75 gives full details.

The A.H. Nilson Machine Co.
Bridgeport, Conn.

Sentiment Staunch; Output Slackens

Operations Drop 2 Points to 34-35 Per Cent, Lowest Since Last December Holiday Week—Markets Quieter—Price Composites Up on New Sheet Classifications

SENTIMENT in the steel industry continues to improve in anticipation of a larger volume of business late in the summer, but at present seasonal influences appear more pronounced, and at least temporarily are affecting practically all lines of steel consumption. Marking the industry's transition into the second half of the year, and to some extent reflecting the effect of the July 4th holiday, steelmaking operations are down 2 points to 34-35 per cent, the lowest since the last week in December.

Chicago is down 6 points to 30 per cent; Pittsburgh down 3 points to 36 per cent, and Buffalo is down 6 points to 40 per cent. Eastern Pennsylvania is off 1 point to 33 per cent. Youngstown is unchanged at 41 per cent; Cleveland at 41 per cent, and Birmingham, at 45 per cent.

Structural steel awards for the week total 29,284 tons, about 9000 tons less than the weekly average this year. Fresh inquiry also has diminished, amounting to 23,887 tons, approximately half the volume that developed in the preceding week.

Rail and track fastening releases at Chicago have improved slightly. Seaboard Air Line has placed an additional 8600 tons of rails. Norfolk & Western will rebuild 450 all-steel hopper cars at its own shops, and General American Transportation System has placed 250 refrigerator cars. The Koppel Industrial Car Co. has booked 200 freight cars for China.

Automotive and pipe line requirements continue to recede moderately.

Pig iron and steel production figures for June when they become available will show reductions from May. It is probable that the daily rate for pig iron was the second lowest of the year. With June estimated, output for the first half of the year totaled approximately 11,250,000 gross tons, about 15 per cent less than in the last half of 1931. Less deflection is apparent in production of steel ingots, which for the first half totals about 15,282,000 tons, or 424,000 tons below the last half of 1930.

With output of passenger cars and trucks in the United States for June estimated at 275,000 units, production in the first half was 1,603,000, 72 per cent of the number built in the first half of 1930.

The third quarter begins with practically no disturbance to prices, except sheets and strip, which under the new classifications now in effect are $2 to $5 higher for comparable grades. The willingness of producers to book sheets and strip to July 1 at June prices, and to ship the material in July drove in a considerable volume of orders and specifications.

June shipments of pig iron were below May. Westinghouse Electric & Mfg. Co. has closed for its second half requirements at Cleveland.

STEEL's single price composite for iron and steel products is up 12 cents this week to $31.11, reflecting the advance in sheet prices. With this issue, STEEL inaugurates a price composite for finished steel, and a composite for steelworks scrap. The finished steel composite is $48.82, up 30 cents from last week, responsive to the rise in sheet prices. The scrap composite is $8.52, up 10 cents, reflecting the stronger situation at Pittsburgh.

Composite Market Averages

	This Week (July 1)	Last Week (June 24)	One Month Ago (June, 1931)	Three Months Ago (April, 1931)	One Year Ago (July, 1930)	Ten Year Ago (July, 1921)
Iron and Steel Composite ..... (Pig iron, billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars)	$31.11	$30.99	$31.02	$31.59	$33.21	$38.14
Finished Steel Composite ..... (Plates, shapes, bars, sheets, hot strip, nails, wire, tin plate, pipe)	48.82	48.52	48.60	49.22	51.90	60.54
Steelworks Scrap Composite ..... (Melting steel, compressed sheets)	8.50	8.40	8.84	10.12	12.58	9.94

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	July 1, 1931	June, 1931	April, 1931	July, 1930
PIG IRON				
Bessemer, del. Pittsburgh	$18.26	18.26	18.26	20.46
Basic, valley	17.00	17.00	17.00	18.20
Basic, eastern del. eastern Pa.	17.00	17.00	17.25	18.00
No. 2 foundry, del. Pittsburgh	18.26	18.26	18.26	19.46
No. 2 foundry, Chicago	17.50	17.50	17.50	17.90
*Southern No. 2, Birmingham	12.00	12.00	13.00	14.00
**No. 2X, Virginia furnace	18.25	18.25	18.25	18.25
**No. 2X, Eastern del., Phila.	17.75	17.76	18.26	20.26
Malleable, valley	17.00	17.00	17.00	18.70
Malleable, Chicago	17.50	17.50	17.50	17.90
Lake Superior, charcoal, del. Chi.	27.04	27.04	27.04	27.04
Gray forge, del. Pittsburgh	17.63	17.63	17.63	18.83
Ferromanganese, del. Pittsburgh	89.79	89.79	89.79	103.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $11, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.40	2.40	2.50	2.50
Connellsville foundry, ovens	3.25	3.25	3.25	3.50
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	29.00	29.00	30.00	31.00
Sheet bars, open-hearth, Pitts.	29.00	29.00	30.00	31.00
Billets, open-hearth, Pittsburgh	29.00	29.00	30.00	31.00
Wire rods, Pittsburgh	35.00	35.00	36.00	36.00

	July 1, 1931	June, 1931	April, 1931	July, 1930
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.65	1.65	1.65	1.70
Steel bars, Chicago	1.70	1.70	1.80	1.80
Steel bars, Philadelphia	1.94	1.94	1.96	1.94
Iron bars, Chicago	1.70	1.70	1.80	1.90
Shapes, Pittsburgh	1.65	1.65	1.65	1.65
Shapes, Philadelphia	1.76	1.76	1.78	1.66
Shapes, Chicago	1.70	1.70	1.80	1.75
Tank plates, Pittsburgh	1.65	1.65	1.65	1.65
Tank plates, Philadelphia	1.85½	1.85½	1.85½	1.85½
Tank plates, Chicago	1.70	1.70	1.80	1.75
Sheets, No. 10 blue anneal., Pitts.	1.85	1.85	1.85	2.00
†Sheets, No. 24, hot, ann., Pitts.	2.40	2.15	2.25	2.55
Sheets, No. 24, galvan., Pitts.	2.90	2.80	2.85	3.15
Sheets, No. 10 blue anneal., Chi.	2.00	2.00	2.05	2.15
†Sheets, No. 24, hot, ann., Chi.	2.55	2.40	2.45	2.70
Sheets, No. 24 galvan., Chi.	3.00	2.95	3.00	3.35
Plain wire, Pittsburgh	2.20	2.20	2.20	2.30
Wire nails, Pittsburgh	1.80	1.80	1.90	2.10
Tin plate, per base box, Pitts.	5.00	5.00	5.00	5.25

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	10.25	10.30	12.50	14.90
Heavy melting steel, eastern Pa.	8.00	8.75	10.00	12.50
Heavy melting steel, Chicago	8.50	8.50	9.60	12.00
No. 1 wrought, eastern Pa.	10.00	10.00	11.00	14.25
No. 1 wrought, Chicago	8.25	8.25	8.80	11.25
Rails for rolling, Chicago	10.50	10.90	11.85	14.50

Sheets

Sales and Specifications Gain Slightly Prior to Price Advance —Chicago Operations Increase

SHEET PRICES, PAGE 69

Youngstown, O.—Fair specifications for common steel sheets have been received the past two days by mills in this district, and a slightly larger volume of autobody sheets, all for shipment before July 31. Midnight, June 30 was the latest at which such specifications were received by valley mills under the old basis, and the sheets must be delivered by the final day of July. The real test of the new classification prices for sheets and strip will come along on Aug. 1, or a few days preceding.

Practically all important buyers have reported that they will be satisfied to make their purchases on the new bases, provided that all users pay the identical price. Some mills closed Tuesday night for the week; others are planning to go down Wednesday and a few on Thursday night.

Philadelphia—Most sheet sellers have put new sheet classifications into effect for July 1, following a period when certain mills quoted substantial concessions in an effort to drive in business. Except for one mill these latter producers confined shipments to July. During the drive galvanized sheets were quoted as low as 2.65c, base, Pittsburgh, and sharp irregularities were noted in blue annealed. A few consumers are said to have contracted for enough to meet their needs for the entire third quarter.

Pittsburgh—New sheet prices now are effective but to a large degree remain nominal since shipments this month will apply against contracts and orders placed at old prices. Mills have not been active in soliciting new contracts but have booked a number on which new quotations, representing advances of $3 to $5 a ton over old levels, prevail. Mills are quoting 2.40c, Pittsburgh, for No. 24 gage hot rolled annealed, 2.90c for galvanized and 1.85c for Nos. 9 and 10 gage blue annealed. Incoming business recently has been heavier, reflecting more the advance in prices than any definite improvement in consumption of leading industries. Automotive requirements continue to taper moderately while activities of other users hold at their recent quiet rates. Mill operations hold around 35 per cent.

Cleveland—Good reception to the new price classification on sheets is the general report from consuming and producing interests. However, aside from the slight flurry of specifying before July 1, the market has been featured by only a fair run of orders. Several large contracts have been closed with local barrel manufacturers at 2.40c for No. 24 hot-rolled annealed, and the fabricators have a movement under way to raise the price of barrels. Specifications under the old basis ceased June 30, though shipments will be permitted through July. Mullins Mfg. Co. has closed a $1,250,000 order for automobile stampings for Studebaker and Hupmobile. Prices are unchanged from announced levels, though galvanized at 2.90c, Pittsburgh, is weak.

Chicago—Sheet mill production is up slightly this week, owing to accumulation of small orders from buyers taking advantage of the old prices quoted up to the start of third quarter. Beginning July 1, mils are using the new sheet classification plan. Gary and Indiana Harbor prices now are 1.80c for hot rolled No. 10; 1.95c for No. 10 blue annealed; 2.50c for hot rolled annealed No. 24; and 3.00c for No. 24 galvanized. Chicago delivered prices are $1 a ton higher. Mills at the middle of the week had advanced operations from 40 to 50 per cent.

Buffalo—Demand for sheets has tapered following an increase last week in orders and specifications.

Current Finished Steel Prices

Prices in cents per pound unless otherwise stated

Steel Sheets

HOT ROLLED No. 10

Pittsburgh base	1.70c
Gary, Ind. Harbor, base	1.80c
Chicago, del.	1.85c
Philadelphia, del.	1.99c
Birmingham, base	1.85c

BLUE ANNEALED No. 9-10

Pittsburgh, base	1.85c
Chicago, district mills	1.95c
Chicago, delivered	2.00c
Philadelphia, del.	2.14c
St. Louis, delivered	2.25½c
Birmingham	2.00c to 2.05c
San Francisco, c.i.f.	2.50c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.40c
Gary, Ind. Harbor, base	2.50c
Chicago, del.	2.55c
Philadelphia, del.	2.14c
Birmingham, base	2.55c

GALVANIZED No. 24

Pittsburgh, base	2.90c
Gary, Ind. Harbor, base	3.00c
Chicago, del.	3.05c
Philadelphia, base	3.19c
Birmingham, base	3.05c
St. Louis, del.	3.15½c

AUTOMOBILE No. 20

Pittsburgh, base	3.10c

FURNITURE

Pitts., No. 10 heavy	2.75c
Pitts., No. 20 light	3.35c

TIN MILL BLACK No. 28

Pittsburgh, base	2.55c to 2.65c
Gary base	2.65c to 2.75c

HEAVY COLD ROLLED No. 10

Pittsburgh base	2.35c
Gary, Ind. Harbor, base	2.45c
Chicago, del.	2.50c
Philadelphia, del.	2.64c

COLD ROLLED No. 20

Pittsburgh, base	2.95c
Gary, Ind. Harbor, base	3.05c
Chicago, del.	3.10c
Philadelphia, del.	3.24c

Tin and Terne Plate

Prices per 100 pound box Pittsburgh

Tin plate, coke base	$5.00

Gary, Ind., base 10 cents higher.

Long ternes, 24, unassorted, lb.	3.15c

Wire Products

(To Jobbers-Merchant Trade)

F.o.b. Pittsburgh, Cleveland base (Per 100 pound keg)

Standard wire nails	$1.80 and 1.90
Cement coated nails	1.80 and 1.90
Galvanized nails	3.80 and 3.90

(Per pound)

Polished staples	2.35c and 2.45c
Galvanized staples	2.60c and 2.70c
Barbed wire, gal.	2.55c and 2.65c
Annealed fence wire	2.35c and 2.45c
Galvanized wire	2.80c and 2.90c

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Rivets

Struc. c.l., Pitts.-Cleve.	2.75c
Struc., c.l., Chicago	2.85c
7/16-in, smaller, Pitts.	70, 10 and 5 off
Chi., Cleve.	70 to 70, 10 and 5 off

Steel Plates

Base, Pittsburgh	1.65c
Philadelphia, del.	1.81½c to 1.85½c
New York, delivered	1.93c
Boston, delivered	2.05c
Chicago, base	1.70c to 1.80c
Cleveland, delivered	1.83½c
Lackawanna, N. Y., base	1.75c to 1.80c
Birmingham, base	1.80c to 1.85c
Coatesville, Pa., base	1.75c
Pacific Coast, c.i.f	2.00c
St. Louis, del.	1.95½c

Structural Shapes

Base, Pittsburgh	1.65c
Philadelphia, del.	1.71c to 1.76c
New York, del.	1.85½c to 1.90½c
Boston, del.	1.98½c
Chicago, base	1.70c to 1.80c
Cleveland, delivered	1.83½c
Lackawanna, N. Y., base	1.75c to 1.80c
Birmingham base	1.80c to 1.85c
Pacific Coast, c.i.f.	2.05c to 2.15c

Bars

SOFT STEEL

Pittsburgh, base	1.65c
Chicago, base	1.70c to 1.80c
Birmingham base	1.80c to 1.85c
Lackawanna, N. Y., base	1.70c to 1.75c
Pacific Coast, c.i.f.	2.05c
Cleveland, base, local del.	1.70c
Cleveland base, out. del.	1.65c
Philadelphia, del.	1.94c
New York, del.	1.98c
Boston, del.	2.05c
Pittsburgh, cold finish	1.85c
Pittsburgh, forg. qual.	1.90c

RAIL STEEL

Chicago Heights	1.60c
Eastern mills	1.50c to 1.55c
Pittsburgh	1.30c to 1.35c

IRON

Chicago, base	1.70c to 1.80c
New York, delivered	1.93c to 2.03c
Philadelphia, delivered	1.89c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pitts., billet cut lengths	1.90c
Stock lengths, mill	1.60c to 1.65c
Chi., billet	1.80c
Chi., rail steel	1.50c to 1.65c
Chi., rail steel, bridge and culvert	1.65c
Philadelphia, cut lengths	2.19c
Cleveland, cut lengths	1.95c to 2.05c

Cold Finished Steel Bars and Shafting

Base, Pittsburgh, Chicago, Buffalo and Cleveland	2.10c
Shafting, turned and ground, mill	2.45c to 2.90c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	28c	29.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to $6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff.
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2300	1.50	51.00 Cr. spring	0.20
2500	2.25	6100 bars	1.20
3100	0.55	6100 Spring	0.95
3200	1.35	Cr., Ni., Van.	1.50
3300	3.80	Carbon Van.	0.95
3400	3.80	9250 (flats)	0.25
4100 .15 to .25 Mo.	0.50	9250 (rds.,sq.)	0.50
4600 .20 to .30 Mo.			

Strip, Hoops Bands

Hot strip, to 6-in., Pitts.	1.60c to 1.65c
Do, 6 6/16 to 24-in., Pitts.	1.50c to 1.60c
Hot strip, bands 6 in. and under, Chicago	1.75c to 1.80c
Do. 6 1/16 to 24 in.	1.65c to 1.70c
Cooperage hoop, Pitts.	1.70c to 1.80c
Do, Chicago	2.00c to 2.10c
Cold rolled strip, Pitts., Cleve., 3 tons, over	2.15c to 2.25c
Worcester, 3 tons, over	2.40c

Rails, Track Material

Standard bess. and open hearth rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$22.00 to $26.00
50 to 75	20.00 to 24.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$34.00
Light rails, Chicago	$36.00
Angle bars, Chi. base	2.75c
Spikes, railroad, mills	2.70c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.70c
Spikes boat, barge, Pitts.	2.90c
Spikes, railroad, Chi.	2.80c
Track bolts, Pitts., steam roads	3.80c
Do. standard, jobbers	73 off list
Track bolts, Chicago	3.80c
Tie plate, mills	$39.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 73 and 10 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list ..... 73 and 10 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 73 and 10 off

Tire bolts, 60, 10 and 10 off.

Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 5, 2½ off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 73 and 10 off

HEXAGON CAP SCREWS

Milled ..... 80-10-10-5 off

Upset 1 in. diam. and smaller ..... 85-10 off

SQUARE HEAD SET SCREWS

Milled ..... 80-5 off

Upset 1 in. and smaller ..... 80-10-5 off

Upset, larger than 1 in. ..... 80-5 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh 2.50c

Do, less carloads, 5 kegs or over, 2.75c; less than 5 kegs 2.90c.

Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	1.90c

Bars

Third Quarter Booking Light—Road-Building Material Moves Well in West

BAR PRICES, PAGE 69

Chicago—Shipments of deformed bars against road and public building contracts are in such volume as to offset largely the drop in automotive orders for cold-finished and alloy bars. Bar mills, while at a little less than 40 per cent, are holding better than was expected for a slow automotive month. The volume of orders in any of the heavy finished lines is not off in proportion to quantity of material. Additional business for third quarter has been closed at 1.70c, base, Chicago, while 1.75c and 1.80c is being obtained for mixed carloads of bars, plates and shapes. Concessions of $1 a ton have been quoted in bordering competitive territory. Little inquiry has appeared for third quarter. Alloy bar mills are operating 35 to 40 per cent.

New York—Steel bars are in a dull situation with little demand. Base price is quiet and unchanged at 1.65c, Pittsburgh.

Philadelphia—Steel bars are quoted usually at 1.65c, Pittsburgh, for carload lots. Contracting for third quarter is slow.

Pittsburgh — Steel bar demand lacks improvement, continuing to reflect the declining trend in automotive requirements. Third quarter contracting has been quiet and confined mostly to smaller users. The open market continues 1.65c with former prices continued on new contracts.

Youngstown, O.—Contracting of steel bar needs for third quarter by miscellaneous consumers ought to have been completed by today, but the tonnage for third quarter is smaller than expected. Buying of common bars appears to be at a minimum with agricultural implement, nut and bolt, railroad shops and other consumers making purchases for immediate delivery in only negligible quantities. Alloy steel bars are not quite so active as a month ago when auto partsmakers were operating more actively than they apparently are at this time. Common steel bars for third quarter delivery hold firmly at 1.65c, Pittsburgh.

Cleveland—Merchant steel bar prices of 1.70c, Cleveland, local delivery, and 1.65c, Cleveland base, outside, are being applied to a small volume of third-quarter contracting. Even with the transition into third-quarter customers are not anticipating needs. Sales continue weak and fail to measure up to volumes established in May.

Cold-Finished Demand Continues to Decline

Cold Finished Prices, Page 69

Pittsburgh — Declining activity among automotive interests is reflected in a further decline in shipments of cold-finished steel bars. Incoming business also is off slightly. Third-quarter contracting is rather slow with the market usually 2.10c, Pittsburgh.

Cleveland—The 2.10c, Cleveland, figure continues to be quoted and has been formally named by leading interests for the third quarter. The market over the week is quiet with little tonnage of note to feature.

Tin Plate Specifications Show Slight Increase

Tin Plate Prices, Page 69

Pittsburgh—Tin plate output is fairly steady at around 65 per cent with a slight improvement reported in recent specifications. Few developments are noted that have any marked effect upon prospective tin plate demand since packing of most of the leading vegetables will not take place until later in the year. Tin plate continues $5, Pittsburgh, per base box.

Youngstown, O.—Independent tin mill producers are ending a satisfactory month. Republic Steel Corp. seems to have found June the month of greatest tonnage production since the company has been owner of a 24-mill unit. Some buying for third quarter needs of canners is noted at the unchanged price of $5 per 100 pounds, Pittsburgh.

Plates

Mills Lead in Activities of Finishing Departments in Middle West—Demand Fairly Active

PLATE PRICES, PAGE 69

Chicago—Pipe line skelp shipments will run through until late July at the existing rate of 6000 to 8000 tons weekly. Special plates for building projects, and also industrial equipment demand are fairly active, but in carload quantities. Outside prices of $1 a ton concession have been quoted, but local plate mills are reported to have lost no business on the basis of 1.70c, at which some third quarter business has been taken. Plate mills are in the most advantageous position of any of the heavy finished departments, largely because of line pipe production in the Milwaukee district.

New York—Plate prices are easy at 1.75c, base, Coatesville, Pa., for carloads, subject to concessions of $1 a ton. The P. T. Cox Contracting Co. is closing on 800 to 900 tons of plates for the New York Central's west-side terminal foundation. General demand is quiet.

Pittsburgh—Plate demand is quiet, with new business limited to small lots. On what contracting has been done old prices have been extended while the open market usually is quoted 1.65c, Pittsburgh. Activity in river equipment is quiet so far as awards are concerned although pending work still is large.

Philadelphia—Plates are moving slowly at 1.70c to 1.75c, base, Coatesville, Pa., for carloads. The market is devoid of large inquiry. One leading mill is operating at 40 per cent.

Cleveland—The plate market is featured by a slightly better run of inquiry. Some customers who have not been heard from in four to five months are showing signs of interest in their needs. Protection is going ahead for third quarter to contract takers at the unchanged level of 1.65c, base, Pittsburgh. The Belvoir avenue development, taking about 2500 tons of plates, is awaiting award,, Cuyahoga county having awarded Curro & Whittaker Co. the general contract. McClintic-Marshall Corp. is low on the steel. The Valvoline Oil Co. is reported considering building a refinery at Logan, O. The company already controls 1800 miles of pipe line in Ohio.

Columbus, O., council is considering appropriation of $226,000 for

construction of a storm stand-by tank along Alum creek south of Main street.

Birmingham, Ala.—Plate fabricators are encouraged by new business and other contracts under negotiation. Birmingham Tank Co. has taken 300 tons for the Southern Advance Paper Co., Hodge, La.

Contracts Placed

300 tons, tanks, for Southern Advance Paper Co., Hodge, La., to Birmingham Tank Co.

125 tons, two steel tanks and towers at Calexico, Calif., and Albuquerque, N. Mex., to Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

100 tons, training tanks for submarine purposes, Pearl Harbor, T. H., to unnamed interest.

Contracts Pending

1126 tons, armor plate, bureau of ordnance, navy department; Midvale Co., Philadelphia, and Carnegie Steel Co., Pittsburgh, low.

350 tons, estimated, steel sheet pile bulkhead Columbia street, Erie basin, Brooklyn; bids July 7, department of docks, New York.

Otis Steel Co. Low on New York Central Plates

New York—New York Central railroad second-half plate requirements were opened June 29 and Otis Steel Co., Cleveland, was low with a bid of 1.60c, Cleveland. Other bids follow: Worth Steel Co., Claymont, Del., 1.87c, Newberry Junction, Pa.; Jones & Laughlin Steel Corp., 1.65c, Youngstown, O.; Illinois Steel Co., 1.70c, Chicago; Carnegie Steel Co., 1.65c, Youngstown, O., and 1.75c, West Seneca, N. Y.; Central Iron & Steel Co., Harrisburg, Pa., 1.90½c, Newberry Junction; Bethlehem Steel Co., Bethlehem, Pa., 1.75c, West Seneca, N. Y.; Weirton Steel Co., Weirton, W. Va., 1.72½c, Newberry Junction; Lukens Steel Co., Coatesville, Pa., 1.84½, Newberry Junction; Inland Steel Co., Chicago, 1.70c, Indiana Harbor, Ind.; Granite City Steel Co., Granite City, Ill., 1.70c, Granite City.

Cable and Chain Awarded

New York—Habirshaw Cable & Wire Corp. has been awarded 80,000 feet parkway cable by the lighthouse bureau for Buffalo at $61.90. Navy yard, Boston, on a bid of $3,915 was awarded 12 pieces 15-fathom 1⅝-inch chain for Staten Island. Sweet & Doyle Foundry & Machine Co., Green Island, N. Y., will supply 16 first class iron sinkers, 80,000 pounds, for Staten Island at $1136.

Railroads

Norfolk & Western Rebuilds 450 Hoppers—Rail Releases Heavier at Chicago

TRACK MATERIAL PRICES, PAGE 69

Chicago—Month-end rail releases were the heaviest in about 30 days, the total for the week being 8000 to 10,000 tons. Truck fastenings also picked up, due to several urgent shipping orders to cover postponed maintenance work. It is indicated, on the other hand, that much of the remainder of the winter and spring track purchases of rails may be shelved temporarily. Finished steel is being specified for the 800 refrigerator cars being built by the Fruit Growers' Express.

New York—Eastern car business is light, with few inquiries.

Preliminary estimates indicate the placing of approximately 1800 freight cars by domestic railroads in June. Koppel Industrial Car Co. has booked over 200 freight cars for export to China.

Pittsburgh—Norfolk & Western railroad will rebuild 450 steel hopper cars at its Roanoke, Va., shops. The same road will close shortly on track fastenings to accompany its recent inquiry for 20,000 tons of rails, bids on which open July 8.

Birmingham, Ala.—Seaboard Air Line Railroad Co. through Receiver E. W. Smith announces placing of a fourth order for rails for immediate rolling, to Tennessee Coal, Iron & Railroad Co., involving 8600 tons, thus making 21,500 tons altogether purchased here.

Tennessee Coal, Iron & Railroad Co. has placed an order for eight cars with Pullman Car & Mfg. Corp. at its Bessemer, Ala., plant.

Car Orders Placed

Export to China, 200 freight cars, to Koppel Industrial Car Co., Koppel, Pa.

General American Transportation system, Chicago, 250 refrigerator cars, to General American Car Co., Chicago.

Norfolk & Western, 450 all-steel hopper cars, to be rebuilt at Roanoke shops.

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., eight box cars to Pullman Car & Manufacturing Corp., Bessemer, Ala.

Rail Orders Placed

Seaboard Air Line Railway Co., 8600 tons, to Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

Car Orders Pending

Navy department, six helium tank cars, General American Tank Car Corp., Chicago, low.

Department of public works, Chicago, 400 cast-steel tunnel cars; award expected.

Locomotives Placed

Pennsylvania railroad, mechanical parts for 54 electrical locomotives, to Baldwin Locomotive Works, Eddystone, Pa.

Over Half Cast Pipe Sold Goes Direct to Users

More than half the cast iron pipe and fittings manufactured in the United States—57.1 per cent, to be exact—is sold by manufacturers to industrial users, including municipalities. This is the report of distribution of sales in 1929 as tabulated by the bureau of the census, from the census of distribution. Wholesalers took 37 per cent and manufacturers' wholesale branches 5.9 per cent.

Sales by the 72 establishments engaged primarily in making cast iron pipe and fittings totaled $80,251,000, of which $45,808,000 went to industrial users, $29,686,000 to wholesalers and $4,757,000 to manufacturers' wholesale branches.

Plan To Concentrate Manganese Ore at Montreal

Toronto, Ont.—Preliminary arrangements are reported completed for establishing a manganese ore concentrating plant at Montreal, Que. The plant is to have daily capacity for treating 2000 to 3000 tons of ore, to be imported from Africa. Interests identified with the project say large American consumers have agreed to take about 200,000 tons annually.

Airplane Needs Filled

Dayton, O. — Hamilton Standard Propeller Corp., West Homestead, Pa., has been awarded 18 propeller blades for Wright Field at $135 each. Nine propeller hub assemblies went to the Steel Products Engineering Co., Springfield, O., at $145 each. Wright Mfg. Co., Bridgeport, Conn., was awarded 16 chain hoists at $41.84.

Capital District Foundry & Machine Corp., Cohoes, N. Y., has increased its capital from $40,000 to $200,000.

Structural Shapes

Milwaukee Bridge Placed, 7000 Tons—Awards Featured by Several Large Lots —4300-Ton Pittsburgh Bridge and 6100-Ton New Jersey Viaduct to Fore

STRUCTURAL SHAPE PRICES, PAGE 69

New York—Awards are more numerous, but of limited tonnages. American Bridge Co. booked 1100 tons for a generator station for the Consolidated Gas Co. Requirements for bridges are heavy. New York Central and the Pennsylvania railroad have taken bids on approximately 4000 tons of shapes. Seacoast Iron Works Inc. took the re-erection of the large hangar, Lakehurst, N. J. Prices are steadier, and, while fabricated and erected prices are still erratic, the spread between bids is somewhat narrower. Approximately 1600 tons for dormitories at Yale university were placed Wednesday.

Charles T. Kavanaugh Inc., Bayonne , N. J., was low on the 6100-ton viaduct section, Jersey City. The spread between the two lowest bids, both by general contractors, was nearly $30,000, the low being $1,257,274.55. On previous contracts for sections on this state highway viaduct, which is crossing the Jersey meadows, steel fabricating and erecting companies have been low and were awarded the contracts. Several general contractors were lower on this section.

Philadelphia—While city council approves the Mt. Airy and Roosevelt boulevard subway extensions requiring an estimated 8000 tons, no action is likely for several months pending adequate financing. Shapes are 1.71c to 1.76c, Philadelphia.

Buffalo—Inquiry for upwards of 500 tons is expected for a new bridge, South Ogden street, over a navigable harbor channel. Several small lots for public works are being figured.

Pittsburgh—Allegheny county will open bids July 21 on the superstructure for the South Tenth street bridge, requiring 4300 tons. Plain shapes usually are 1.65c, Pittsburgh. Third-quarter contracting is slow.

Cleveland—Awards have been more numerous, though small individually. W. F. Henrich Co. has placed 400 tons for a New York state armory; the Glenville exchange building for Ohio Bell Telephone Co. has been closed and Austin Co. will build a plant at Erie, Pa., for General Electric Co. Local bidders are preparing for the Juvenile courts group, 700 tons, to go in July 2; otherwise fresh pending work is negligible. Plain material is generally 1.65c, Pittsburgh.

Milwaukee—Common council has passed a charter ordinance permitting David McKeith, commissioner of public works, to award contract for the Thirty-fifth street viaduct without formality of competitive bidding. At the same time a resolution was adopted permitting the city to buy the structural steel, amounting to 7000 tons, from four Milwaukee fabricating shops who have offered to sell the city the steel at cost in order to keep their shops at work. The concerns are Worden-Allen Co., Wisconsin Bridge & Iron Co., Milwaukee Bridge Co. and Lakeside Bridge & Steel Co.

Boston—Structural contracts are slow in award, those for the week totaling only 200 tons.

Chicago—Century of Progress again has postponed action on several thousand tons for the electrical group buildings. Plain structural material is quoted at 1.70c, Chicago.

Birmingham, Ala.—New business shows improved conditions with several specifications in sight for early distribution. Virginia Bridge & Iron Co. and Ingalls Iron Works received contracts during week above average small-tonnage size.

Contracts Placed

7000 tons, Thirty-fifth street bridge, Milwaukee, for city; steel will be allocated on petition of the following: Worden-Allen Co., Wisconsin Bridge & Iron Co., Milwaukee Bridge Co., and Lakeside Bridge & Steel Co., at cost in order to keep shops running. Milwaukee council has permitted contract to be awarded without formality of competitive bidding.

3100 tons, bridge, Danville, Tenn., for Louisville & Nashville railroad, to Virginia Bridge & Iron Co., Roanoke, Va.

2290 tons, Enoch Pratt free library, Baltimore, to McClintic - Marshall Corp., Bethlehem, Pa.

2100 tons, subway crossing, city hall, Philadelphia, to McClintic-Marshall Corp., Bethlehem, Pa.

1910 tons, bridges, Reading railroad, Wooster and Musgrave streets, Philadelphia, to McClintic-Marshall Corp., Bethlehem, Pa.

1100 tons, generator station, Consolidated Gas Co., Hunts Point, N. Y., to American Bridge Co., Pittsburgh.

1100 tons, additional tonnage, Lorain-Central bridge, Cleveland, to Mt. Vernon Bridge Co., Mount Vernon, O.; this tonnage in addition to 11,700 tons let Aug. 16, 1930 to same interest.

1000 tons, race track pavilion, Glenview, Ill., to United Iron & Wire Works, Chicago.

515 tons, shed and pipe shop, American Locomotive Co., Schenectady, N. Y., to American Car & Foundry Co., New York.

500 tons, plant, Erie, Pa., for General Electric Co., to Austin Co., Cleveland.

500 tons, bombproofs for Wright field, Dayton, O., to Worden-Allen Co., Milwaukee.

460 tons, plant addition, Southern Advance Paper Co., Hodge, La., to Ingalls Iron Works Co., Birmingham, Ala.

450 tons, municipal building, Minneapolis, Minn., to Williams Bros. Boiler & Mfg. Co., Minneapolis.

445 tons, building, Irvington House for Cardiac Children, Irvington, N. Y., to Bethlehem Fabricators Inc., Bethlehem, Pa.; John Lowry Inc., contractor.

440 tons, field house, Villa Nova college, Villa Nova, Pa., to Fort Pitt Bridge Works, Pittsburgh.

400 tons, armory, Syracuse, N. Y., to Ingalls Iron Works, Veronna, Pa., through W. F. Henrich Co., Cleveland, general contractor.

350 tons, bridge, New Westminster, B. C., for Canadian National Railways, to Dominion Bridge Co., Lachine Locks, Que.

350 tons, bridge, Germantown, N. Y., to Lackawanna Steel Construction Co., Buffalo, N. Y.; John Borrio, general contractor.

300 tons, warehouse, Hubbard Grocery Co., Charleston, W. Va., to Pittsburgh Bridge & Iron Works, Rochester, Pa.

300 tons, school, Montreal, Que., for board of education, to Canadian Structural Steel Works Ltd., Montreal.

300 tons, Chicago & North Western railway subway, Kenosha, Wis., to Worden-Allen Co., Milwaukee.

275 tons, church, Queens, N. Y., to George A. Just Co., Brooklyn, N. Y.

250 tons, highway bridge, New York state, to Lackawanna Steel Construction Corp., Buffalo; Lane Construction Co., contractor.

245 tons, nurses' home, hospital Holmdel, N. J., to Jersey Steel Co., Trenton, N. J.

240 tons, bridge, route 4, section 3, Englewood, N. J., to Harris Structural Steel Co., New York.

230 tons, building, Elizabeth Gas Co., Elizabeth, N. J., to Elizabeth Iron Works, Elizabeth, N. Y., to Lieser Structural Steel Co.

200 tons, additional, Rosenwald mu-

Awards Compared

	Tons
Awards this week	29,199
Awards last week	40,140
Awards two weeks ago	21,274
Awards this week in 1930	22,740
Av. weekly awards, 1930	35,242
Av. weekly awards, 1931	36,844
Av. weekly awards, June	38,076
Total awards to date, 1930	923,828
Total awards to date, 1931	1,031,646

seum, Jackson Park, Ill., to McClintic-Marshall Corp., Bethlehem, Pa.

200 tons, high school, Bessemer, Mich., to Worden-Allen Co., Milwaukee.

200 tons, highway bridge, Union county, N. J., for New Jersey state highway commissioin, to L. F. Fox Co., Dayton, O.

190 tons, re-erection of hangar, Lakehurst, N. J., to Seacoast Iron Works Inc., Red Bank, N. J.

180 tons, bridge, Logan county, W. Va., to Bristol Steel & Iron Works, Bristol, Va.

175 tons, substation, New York Power & Light Co., Pleasant Valley, N. Y., to Lehigh Structural Steel Co., Allentown, Pa.

170 tons, highway bridge, Bartlett, N. H., to McClintic-Marshall Corp., Bethlehem, Pa.

170 tons, two apartments, Brooklyn, N. Y., to Gaynor & Rosenblum, Brooklyn.

150 tons, store building, Madison, Wis., to C. Hennecke Co., Milwaukee.

150 tons, nurses' home and laundry building, Quebec, Que., to Eastern Canada Steel Co., Quebec.

150 tons, two garages, for Cincinnati, to Dayton Structural Steel Co., Dayton, O.

126 tons, bridge, Ohio state highway project No. 174, Beverly, O., to Massillon Bridge Works division, Massillon, O., Fort Pitt Bridge Works, Pittsburgh.

125 tons, grade crossing elimination for Delaware & Hudson railroad, Unadilla, N. Y., to unstated interest through Dinnella Bros., Pittsburgh, general contractor.

125 tons, extension to craneway, Budd Wheel Co., Detroit, to R. C. Mahon Co., Detroit.

125 tons, fire station, Staten Island, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa., through Pearlman & Wortman, contractors.

120 tons, elevated tank, Trenton, N. J., to McClintic-Marshall Corp., Bethlehem, Pa.

120 tons, bridge, Teaneck, N. J., to McClintic-Marshall Corp., Bethlehem, Pa.

115 tons, grade crossing elimination, Canton, N. Y., for New York Central railroad, to Shoemaker Bridge Co., Pottstown, Pa.

110 tons, printing building, East Seventh street, Los Angeles, to Consolidated Steel Corp., Los Angeles.

108 tons, Mahoning road bridge, Canton, O., to Massillon Bridge Works division, Massillon, O., Fort Pitt Bridge Works, Pittsburgh.

108 tons, bridge, Andover, Mass., to McClintic-Marshall Corp., Bethlehem, Pa.

105 tons, Ohio Bell telephone exchange building, 12300 St. Clair avenue, Cleveland, to Republic Structural Iron Works, Cleveland, through W. J. Shirmer Co., general contractor.

102 tons, alteration to Williamsburg bridge, New York, to National Bridge Works, Long Island City, N. Y.

100 tons, 75-foot truss, Illinois highway department, to McClintic-Marshall Corp., Bethlehem, Pa.

100 tons, forms, United States engineer, Vicksburg, Miss., to Truscon Steel Co., Youngstown, O.

100 tons, shapes and plates, steel tank and tower, veterans' hospital, Albuquerque, N. Mex., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

100 tons, postoffice, Warren, R. I., to Palmer Steel Co., Boston.

100 tons, extension to crane runways, Santa Fe railroad, Chicago, to McClintic-Marshall Corp., Bethlehem, Pa.

100 tons, truss span, Indiana-Michigan canal bridge, Illinois, route 46, to McClintic-Marshall Corp., Bethlehem, Pa.

100 tons, warehouse for International Harvester Co., Brighton district, Boston, to Boston Structural Co., Boston.

100 tons, fire and police station, Yonkers, N. Y., to Lieder Structural Steel Co., New York.

Contracts Pending

6100 tons, viaduct, route 25, connecting link, section 1, and route 25, section 3, Jersey City, N. J., furnishing and erecting steel superstructure with ramp connections; Charles T. Kavanaugh Inc., Bayonne, N. J., low, $1,257,274.55; Thompson, Leopold & Fredburn, New York, second low, $1,287,833.05. Bids taken by New Jersey state highway commission, Trenton, N. J., June 29.

5600 tons, three highway bridges in Louisiana; bids June 30.

4300 tons, South Tenth street bridge, Pittsburgh, for Allegheny county; bids open July 21.

2500 tons, telephone building, Indianapolis.

2500 tons, coal breaker, St. Nicholas, Pa., for Philadelphia & Reading Coal & Iron Co.; bids open July 6.

2000 tons, United States government public health service building, Washington; bids open Aug. 3.

1500 tons, *Times Star* building, Cincinnati.

1500 tons, ammunition depot, Oahu, T. I.; bids being taken.

1200 tons, laboratory for the United States Forest Products Co., Madison, Wis.

1100 tons, passenger and terminal office building for Illinois Terminal Railway Co., St. Louis.

1000 tons, postoffice, Fort Worth, Tex.

1000 tons, traffic bridge over South Saskatchewan river, Saskatoon, Sask., for city council.

550 tons, apartment, Lansdowne, Pa.; George Kessler Contracting Co., Phila-

(*Concluded on Page* 77)

Concrete Bars

Awards Heavier as 4000-Ton Viaduct and 2000-Ton Warehouse Go—Activity Marked on Pacific Coast — Needs Taper at Chicago—Pending List Lighter

REINFORCING BAR PRICES, PAGE 69

New York—Bars for the New York Central railroad's St. John's park terminal warehouse, about 2000 tons, have been placed, the largest letting in some weeks. Several hundred additional tons are up for New Jersey highways and bridges. Several contracts, held up due to labor troubles are active following settlement of wages. Close to 400 tons were expected to be closed this week for Westchester county park commission roads. Prices are steadier and firmer with less shading. On small lots 1.98c, New York, is holding well.

Boston—Contract has been placed for 200 tons for road building work by Massachusetts with Northern Steel Co. There was probably 150 tons more sold in odd lots.

Philadelphia—Most recent reinforcing bar tonnage figured here is still pending, with new inquiry spotty. Prices are unchanged at 1.55c to 1.60c, subject to $1 a ton concession.

Buffalo—State road contracts on which bids have been received will require over 1000 tons, divided into a score of projects.

Pittsburgh—Demand is steady and June business compared favorably with that of May. Prices are subjected to shading on large lots, usually being $1.60 to $1.65 for stock lengths.

Cleveland—The 700 tons in the Belvoir boulevard development awaits award to general contractor. Paterson-Leitch Co. and Truscon Steel Co. each took a 100-ton job locally over the past week. New inquiry is light.

Chicago—While volume shipments of reinforcing bars continue on public work and road projects, fresh inquiries have tapered. Billet reinforcing bar quotations are easing, recent bids disclosing prices of 1.80c for carloads and over. About 3000 tons of Illinois road work may be let this season. About 2000 tons is being distributed from a recent state letting.

Awards Compared

	Tons
Awards this week	**9,072**
Awards last week	**6,679**
Awards two weeks ago	**3,885**
Awards this week in 1930	**4,753**
Av. weekly awards, 1930	**6,990**
Av. weekly awards, 1931	**6,853**
Av. weekly awards, June	**6,506**
Total awards to date, 1930	**190,434**
Total awards to date, 1931	**191,896**

Contracts Placed

4000 tons, Sixth street viaduct, Los Angeles, to unstated interest.

2000 tons, St. John's Park terminal, New York Central railroad, West, Washington and Clarkson streets, New York,

(*Concluded on Page* 77)

Strip

New Classification in Effect—Specifications Are Light but Market Holds Firmly

STRIP PRICES, PAGE 69

Pittsburgh—Strip producers report increasing success in application of the higher prices instituted on hot strip for the new quarter. A number of contracts have been booked at 1.55c and 1.65c but inasmuch as shipments for several weeks will be made against lower priced orders, the advance will not be thoroughly tested for about another month. Specifications continue light with requirements of the automotive industry still declining. Operations hold around 25 to 30 per cent for hot mills and 20 to 25 per cent for cold strip.

New York—Hot-rolled strip is slightly firmer at 1.50c to 1.55c, Pittsburgh, for wide and 1.60c to 1.65c on narrow. Cold-rolled is 2.15c, Pittsburgh.

Youngstown, O.—Consumers of strip steel have specified in fairly satisfactory amounts for July delivery, but this specifying under the old basis ended June 30 and the material thus covered must be delivered by July 31. Thereafter the new classification bases will apply, say the important makers in this district. Strip mill operations here are at about 50 to 55 per cent of capacity, most shipments being of the narrower widths.

Cleveland—The $1 a ton advance for third quarter on hot-rolled strip did not drive in as large a volume of specifications before the deadline of July 1 as was expected. On the other hand strength is lent in the new prices holding in absence of reported or even rumored cut below 1.55c and 1.65c, Pittsburgh, base, for wide and narrow, respectively. Cold-rolled strip is quiet at 2.15c, Cleveland, for large lots, 2.25c applying to smaller specifications. Current sales volumes in both hot and cold-rolled grades are poor, with the possible exception of some specifying immediately preceding third quarter.

Chicago—Hot-rolled strip mills in this district, while expecting decidedly low production during July feel more confidence in the outlook for August, partly because of prospective higher freight rates that may result in strengthening of prices. Practically no third quarter business has been placed, and the strength of the 1.65c to 1.70c quotation for wider material is untested. Narrow sizes are quoted 1.75c to 1.80c, Chicago, for third quarter. Some third quarter cold-rolled strip business has been taken at 2.15c, Pittsburgh-Cleveland.

Operations Fall Two Points to 34-35 Per Cent

Youngstown, O.—Steel production remains unchanged this week at 41 per cent capacity. A five-point advance in Republic Steel Corp. activity, bringing that company's average in the district 45 per cent, was the most encouraging development of the week. This gain was offset, however, by narrow losses elsewhere. Carnegie Steel operations are somewhat lower than recently and are estimated at 35 or slightly higher, against 40 per cent two weeks ago. Eight Republic sheet mills at Niles began rolling Monday. Empire Steel Corp. mills remain idle. Sharon Steel Hoop Co. activity is holding at 50 per cent, both in ingot and finishing departments.

	Per Cent
Operations this week	34-35
Operations last week	36-37
Operations two weeks ago	38
Operations this week, 1930	65
High for 1931, (March 19)	57
Low for 1930, (July 2)	34-35

Philadelphia—Continuing a consecutive fifteen-week decline, eastern ingot operations are down again this week to 33 per cent, a drop of one point from last week. While one or two mills may suspend operations for the week, the great majority contemplate no extended suspension following Fourth of July holiday.

Buffalo—Two units have been dropped this week from the active list of open hearths thus cutting six points off the operating rate, which now stands at 40 per cent capacity.

Pittsburgh—Ingot output is down three points to slightly above 35 per cent. Blast furnace operations also have been reduced to 16 active stacks of the 54 in the district. Finishing mill operations generally are steady.

Cleveland—Raw steel output is steady and at 41 per cent open-hearth capacity continues the same at last week, each of the four plants likewise continuing with same active furnaces. Seventeen of 34 open hearths in aggregate, are engaged.

Chicago—Considering Fourth of July shut-downs, ingot production is at 30 per cent, against 35 to 37 a week ago. This is virtually the bottom as represented by ingot production late last December. The leading interest has banked its fifth steelworks blast furnace, this one at Joliet until after the holiday. Ten of the district's 36 steelworks furnaces are blowing.

Birmingham, Ala.—Operations continue at 45 per cent capacity.

June Warehouse Sales Only Slightly Under May

Warehouse Prices, Page 91

New York—Steel warehouse volume holds well, jobbers being more active than the industry in general. Prices are unchanged, but one jobber contemplates possibly early action on sheets with adjustments in line with new classifications.

Pittsburgh—Demand is quiet but little changed. Sheets are slightly less active. Sellers have made no official change in price of cold-rolled bars though shading is noted.

Cleveland—Jobbers say June volume reveals a slight decline from the May total. A sheet jobber has announced price revisions which will bring quotations in line with the mill reclassification plan. Prices otherwise are unchanged and reasonably firm.

Detroit—Outlook on the part of general manufacturing and automotive plants is mixed for July, some expressing confidence in revival for that month. Due to the approaching holdiay there has been less demand for material from stock the past week.

Cincinnati—Jobbers report orders during the past week showed little if any influence from the impending holiday.

Chicago—Warehouses have reduced prices 10 per cent on machine and carriage bolts, lag screws, bolt ends, fitting-up bolts, plow bolts, and stay bolts. Nuts also are reduced similarly, the discounts being 60, 10 and 10 off list for keg lots, and 50, 10 and 10 for less than kegs. June sales were slightly off from May.

St. Louis—Warehouse business has shown some betterment during the past two weeks. While demand is still extremely spotted and irregular, aggregate volume represented has broadened. Gradual expansion is noted in takings by the general manufacturing trade.

Concrete Bars Placed

(*Concluded from Page 73*)

to Concrete Steel Co., New York; P. T. Cox Co., contractor.

1000 tons, Pennsylvania railroad track elevation in Chicago, to Joseph T. Ryerson & Son Inc., Chicago; previously reported to unstated fabricator.

730 tons, capitol garage, Washington, to Concrete Steel Co., Pittsburgh.

300 tons, sewer, Thirty-fifth to Thirty-ninth street, West side, New York, to Concrete Steel Co., Pittsburgh, through Murphy & Richmond, Brooklyn, N. Y., contractors.

250 tons, apartment, Cherokee & Selma streets, Los Angeles, to unstated interest.

200 tons, Massachusetts road work, to Northern Steel Co., Boston.

200 tons, Illinois roadwork, to Concrete Steel Co., Pittsburgh.

200 tons, Institute for Women, Tehachapi, Calif., to Badt-Falk Co., Los Angeles.

150 tons, theatre, Alameda, Calif., to Soule Steel Co., San Francisco.

150 tons, storehouse, Branch River Wool Combing Co. Inc., North Smithfield, R. I., to Bancroft & Martin Rolling Mills Co., Portland, Me.; Temple & Crane Inc., Boston, general contractor. Brayton-Wilson-Cole Corp., Roxbury, Mass., awarded 70 tons structurals and miscellaneous iron. Previously reported as going to unstated fabricators.

140 tons, building, Walter P. Reed hospital, Washington, to Concrete Steel Co., Pittsburgh.

102 tons, subway under Southern Pacific tracks, Santa Ana, Calif., to unstated interest.

100 tons, state hospital, Norwalk, Calif., to unstated interest.

100 tons, apartment, North Catalina avenue, Los Angeles, to unstated interest.

100 tons, church, West Adams boulevard, Los Angeles, to unstated interest.

100 tons, Clarington bridge, Monroe county, O., to Truscon Steel Co., Youngstown, O., through Clemmer-Noah Construction Co., Akron, O.

100 tons, public work, Hatboro, Pa., to Taylor-Davis Inc., Philadelphia, through Fish-Rutherford Co., Philadelphia.

100 tons, Villanova college building, Villanova, Pa., to Concrete Steel Co., Pittsburgh.

100 tons, work for Gulf Refining Co., Jefferson avenue development, to Paterson-Leitch Co., Cleveland.

100 tons or more, 50,000 pieces, reinforcing steel fabric, United States engineer, Memphis, Tenn., to Wheeling Corrugating Co., Wheeling, W. Va.

Contracts Pending

1500 tons, ammunition depot, Oahu, T. I.; bids being taken.

1000 tons, Rock Island-Moline, Ill., bridge, over Mississippi river; Woods Bros. Construction Co., Lincoln, Nebr., general contractor.

400 tons, city hall, Beverly Hills., Calif.; bids July 14.

265 tons, highway, route 8, section 7, Knowlton, Warren county, N. J.; bids July 8, board of freeholders, courthouse, Belvidere, N. J. Hilton L. Butler, clerk. Work also includes 143-foot and one 12-foot bridge span and one 16-foot arch bridge span.

260 tons, widening bridge over Santa Ana river, Riverside county, Calif.; bids opened.

225 tons, highway, route 40, section 4, Medford to Red Line, Burlington county, N. J.; bids July 13, New Jersey state highway commission, Trenton, N. J.; A. Lee Grover, chief clerk. Work also includes three small span bridges.

150 tons, high school, East Aurora, N. Y.; bids in.

100 tons, highway work, Ventura county, Calif.; bids July 15.

Structural Shapes Pending

(*Concluded from Page 73*)

delphia, general contractor.

500 tons, bridge, Erie railroad, Hillburn, N. Y.; bids in.

500 tons, South Ogden street bridge, Buffalo; plans now being prepared for war department approval.

450 tons, pump and blower house for Chicago sanitary district, Chicago.

400 tons, Matthew Keenan Health center, Milwaukee.

300 tons, postoffice, Erie, Pa.; bids went in June 29.

300 tons, section B, East Boston tunnel, Boston.

241 tons, bridge over Fresno river near Madera, Calif., bids July 15.

231 tons, school house building, Dorchester district, Boston.

225 tons, Jewish home, Brown's Hill, N. J.

200 tons, bridge, Erie county, N. Y.; bids being taken.

200 tons, Montgomery county, bridge, Arcola, Pa.

175 tons, apartment for Marion Realty Co., San Francisco; bids being taken.

150 tons, apartment, for Allen & Co., San Francisco; bids being taken.

150 tons, addition, Morse street school, Toronto, Ont., for board of education.

150 tons, government hangar, Squantum, Mass., Hartenstine Bane Co., New York, low on general contract.

150 tons, postoffice, Fort Wayne, Ind.

115 tons, standpipe, Weston, Mass.

100 tons, hangar extension, Squantum, Mass.; Hartzell-Zane Co. Inc., New York, general contractor.

Unstated tonnage, Rock Island-Moline, Ill., bridge, for Rock Island arsenal; Wood Bros. Construction Co., Lincoln, Nebr., general contractor.

Contracts to Aid Jobless Reach Forty-Six Millions

Washington—Contract awards for public and semi-public works construction projects totaling $46,808,286 were reported to the public works section of the President's emergency committee for employment last week.

Addition of this amount brought total of contract awards reported since December 1, 1930, to $1,815,288,788. The week before last $88,540,234 worth of contract awards were reported.

To Scan Scrap Credit

A more careful analysis of accounts and the elimination of credit risks, which have been costly in the St. Louis scrap trade in the past, will be the objects of the credit bureau of the St. Louis chapter of the Institute of Scrap Iron and Steel, recently launched. The members will exchange credit information through Fred Fuld, secretary of the chapter, concerning accounts overdue 30 days and longer, shippers who consistently overbill or doctor shipments, dealers who fail to live up to contracts and similar matters.

Pipe

Both Award and Inquiry for Line Pipe Slackens—Cast Contracts Quiet

PIPE PRICES, PAGE 91

New York—Bids went in this week on close to 2000 tons for Brooklyn and Queens, contractors lettings. Several hundred tons for Ticonderoga have also been bid. Fresh inquiry and lettings have slumped following a flurry during the last two weeks. Prices are weak, showing little tendency to firm. Bids go in next week on more than 30,000 feet of large size steel pipe for the Passaic valley water commission, Paterson, N. J. Small lots of cast pipe are fairly active.

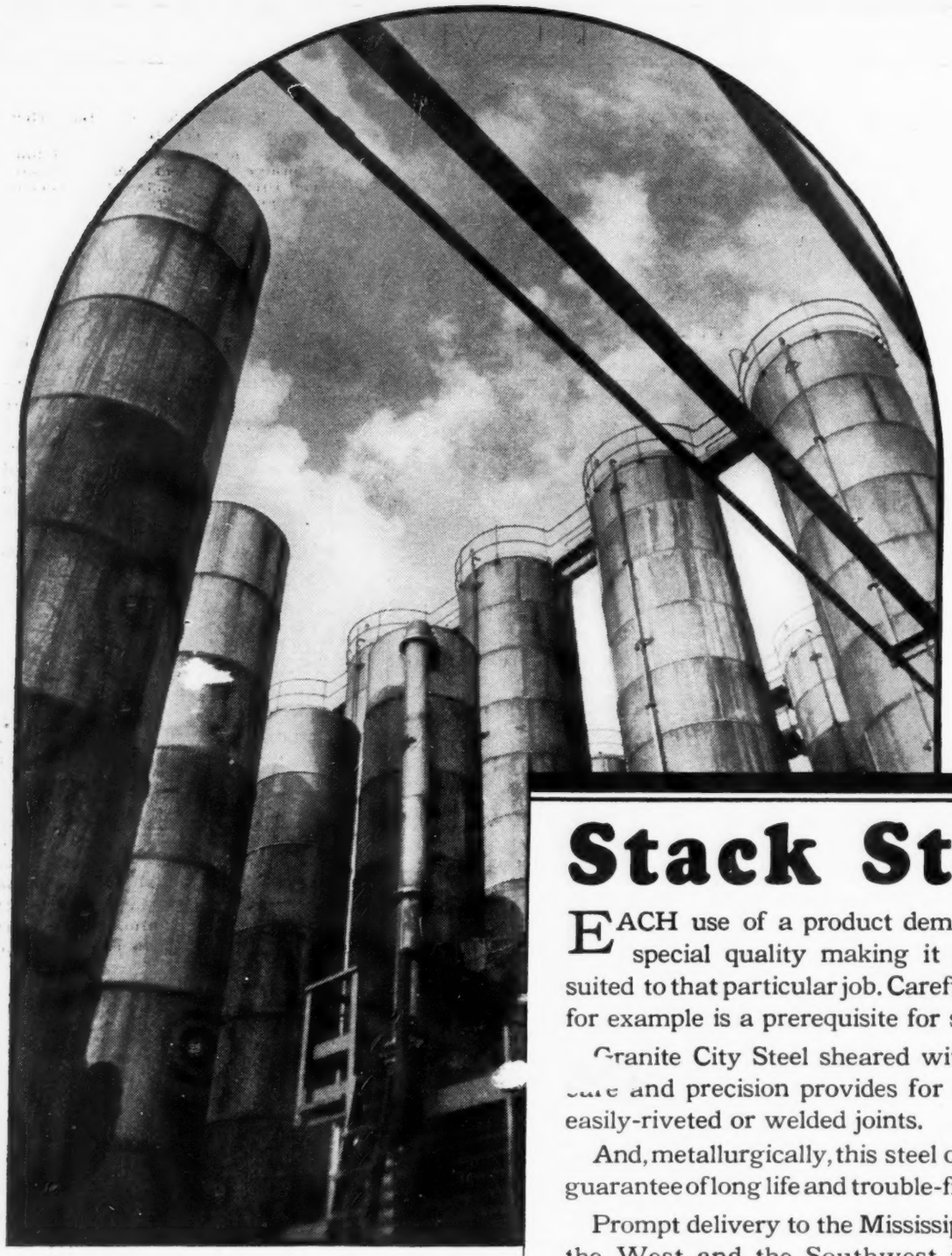
Pittsburgh—All but a few of the more important pipe line projects have been closed and the market is lacking in awards of new lines. Lycoming Natural Gas Co. line is scheduled for early closing. Activity in standard pipe is quiet and little changed while demand for other tabular products lacks improvement.

Cleveland — Jobbing needs are slack and aggregate pipe tonnage moving is not up to fair-sized proportions. Building needs are restricted.

Chicago—Recent bids on water pipe, 6-inches and over, have been at $42 to $44, delivered Chicago, while 4-inch is quoted $45 to $47.

The expected inquiry for 2000 tons of miscellaneous pipe for the Chicago sanitary district, bids July 16, probably will amount to only about 500 tons. More municipal business is expected to be released in Ohio because of the state supreme court ruling on bond issue limitations.

Birmingham, Ala.—Lettings have



Stack Steel

EACH use of a product demands some special quality making it peculiarly suited to that particular job. Careful shearing for example is a prerequisite for stack steel.

Granite City Steel sheared with unusual care and precision provides for well-fitted, easily-riveted or welded joints.

And, metallurgically, this steel offers every guarantee of long life and trouble-free service.

Prompt delivery to the Mississippi Valley, the West and the Southwest is assured through a convenient plant location at Granite City, Illinois.

Chicago, Dallas
Kansas City
Los Angeles

SINCE 1878
REG. U.S. PAT. OFF.
GRANITE CITY STEEL

St. Louis, St. Paul
San Francisco
Salt Lake City

GRANITE CITY STEEL CO.

GRANITE CITY ILLINOIS

GALVANIZED, BLUE-ANNEALED
AND BLACK SHEETS . . .
PLATES AND TIN PLATE

improved and new business in sight is encouraging. American Cast Iron Pipe Co. will fill order of 600 tons, various sizes for Hartford, Conn., and produce 755 tons for Vallero, Calif.

Cast Pipe Placed

755 tons, various sizes, Vallero, Calif., to American Cast Iron Pipe Co., Birmingham, Ala.

650 tons, 6 to 12-inch, Newcastle water district, second bidding, opened June 19, to United States Pipe & Foundry Co., Burlington, N. J.

237 tons, 6 to 18-inch class B, Burbank, Calif. Allocated as follows; to United States Pipe & Foundry Co., Burlington, N. J., 158 tons of 6 and 10-in. and to C. G. Claussen & Co., San Francisco, 79 tons of 18-inch class B.

208 tons, 2 to 12-inch class 150, Fairfield, Calif., to Pacific States Cast Iron Pipe Co., Provo, Utah.

202 tons, 6, 8 and 12-inch, Newton, Mass., to Warren Foundry & Pipe Co., Phillipsburgh, N. J.

108 tons, 4 to 10-inch class B, Antioch, Calif., to general contractor, C. H. Brown.

100 tons, 10 and 12 inch monocast, for Ellensburg and Kirkland, Wash., to American Cast Iron Pipe Co., Birmingham, Ala., through R. C. Polk, Seattle.

Steel Pipe Placed

Unstated tonnage, pontoon discharge pipe for dredge PULLEN, U. S. Engineer, Jacksonville, Fla., to J. G. Christopher, Jacksonville.

Unstated tonnage, 50 pieces 30-inch shore pipe for dredge CURRITUCK, U. S. Engineer, Wilmington, N. C., to Chicago Bridge & Iron Works, Chicago.

Cast Pipe Pending

831 tons, 20 and 24-inch class 100 and 250, Vallejo, Calif.; American Cast Iron Pipe Co., Birmingham, Ala., low.

810 tons, 20-inch class B pipe, San Bernardino, Calif.; C. G. Claussen & Co., San Francisco, low.

750 tons, 16-inch class B, Oakland, Calif.; bids July 8.

500 tons, miscellaneous sizes, for Chicago sanitary district; bids July 16.

266 tons, 20 and 24-inch class B or 150 pipe, Burbank, Calif.; bids July 7.

225 tons, eighteen sluice gates, department of water supply, New York, for chamber No. 2, city tunnel hill view reservoir; work also includes 18 tons cast steel and some bronze work; Hardie-Tynes Mfg. Co., Birmingham, Ala., low at $37,223.

100 tons, miscellaneous sizes for North Chicago, Ill., sewage treatment works; bids in.

Steel Pipe Pending

5000 tons, 45 and 52-inch steel pipe with concrete alternate, for Passaic, Valley commission, Paterson, N. J.; bids July 7.

2500 tons, water main, Belvoir boulevard, Cleveland; Curro & Whittaker, general contractors; McClintic-Marshall Corp., Bethlehem, Pa., low on steel.

1050 tons, 36-inch steel pipe, Passaic valley commission; East Jersey Pipe Co.; New York, low.

Wire

Contracting for Third Quarter Is Light—Eastern Market Better Than Western

WIRE PRICES, PAGE 69

Chicago—Lack of interest in third quarter contracting for wire products is even more marked than had been expected. Actual quarterly obligations are negligible. Quotations of $1.85 to $1.95, Chicago or western mills, to jobbers for wire nails, and 2.25c for plain wire, are regarded as nominal. Mills are barely able to hold 30 per cent operations, and July is unpromising. Jobbers are taking only small quantities of common products. As this is the dull season for barbed wire and fencing, no demand is expected for at least 30 days.

Worcester, Mass.—Little third quarter activity is apparent in wire. Buyers generally are hesitant to commit themselves to contract and present production schedules will do well to maintain themselvs.

New York—Wire is steady at 2.20c, Pittsburgh, and nails are holding generally at the flat price of 1.80c, Pittsburgh. The differential of $2 per ton to the general trade is disappearing.

Pittsburgh—Wire specifications, although still light, showed a slight improvement over the past week. Third quarter contracting still is slow with the market continuing $1.80 to Jobbe.. for wire nails, 2.20c for plain wire and $35 for wire rods. Requirements of automotive companies co[illegible] to decline slowly but de[illegible]ers is slightly more active in certain districts. Fencing and barbed wire are quiet.

Cleveland—In general, contract customers of wire and wire products are being carried into third quarter at unchanged levels from their second-quarter contracts. In several instances formal prices have not been announced, but a leading interest has named 2.20c, Pittsburgh, on wire; $1.80 a keg for nails to jobbers and $1.90 a keg to the general trade. Shipments are fairly steady and incoming business shows little change from that of recent weeks.

Bolt, Nut Buying Small; Larger Discount in Effect

Bolts, Nuts, Rivets Prices, Page 69

Pittsburgh—Business in bolts, nut and rivets shows no improvement and demand from all leading consumers is confined to small lots. Third quarter contracting is fairly active with prices of bolts and nuts lowered by the addition of an extra 10 per cent o the former 73 per cent discount. Rivets are unchanged, with structural rivets 2.75c, Pittsburgh.

Cleveland—Price recession in bolts and nuts amounting to an extra dicount of 10 points from the 73 off discount is general in this district. Several mill interests are making this quotation to large takers. Third quarter contracting has been going on, but at low volume, in rivets which at 2.75c, Pittsburgh, have not reflected any price change.

Chicago—A reduction of 10 per cent is bei[illegible]uoted by producers of bolts and nuts to larger jobbers and consumers. Discounts named are 73 and 10 off for machine and carriage bolts, and semifinished and hot pressed nuts. No change is announced here for structural and small rivets. Specifications have dropped still further, owing to additional closing of buyers' plants for fiscal year inventories. Several bolt and nut plants will close until July 30.

Navy Department Places Orders for Cranes

Washington—Navy department today announced the award of a contract to Industrial Brownhoist Corp., Cleveland, for the construction of a gasoline-operated locomotive crane to be used on the marine railway in the navy yard at Boston. The navy will pay $16,755 for the crane.

The R. W. Kaltenbach Corp., Bedford, O., was awarded a contract to build a 30-ton revolving crane at the naval submarine base at Pearl Harbor, T. H., for $28,339.

Indian Iron Is Imported

Philadelphia—The following imports were received at this port during the week ending June 27: 3129 tons, chrome ore, Russia; 50 tons ferromanganese, Yugoslavia; 6660 tons iron ore, Algeria; 10 tons bearing bars, Sweden; six tons bearing tubes, Sweden; 135 tons structural shapes, Belgium. Pig iron imports included 200 tons from Sweden and 2370 tons from British India.

Raw Material Prices

Pig Iron

Per Gross Ton

FOUNDRY, No. 2

Chicago furnace	$17.50
Pittsburgh, dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Valley furnace	17.00
Cleveland fur., local del.	17.00
Philadelphia, delivered	17.26
Virginia, furnace	17.75
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	17.00
Buffalo, del. Boston	21.41 to 21.91
Buff., all-rail, Brooklyn	19.91 to 20.91
Buff., all-rail Newark	18.28 to 18.78
Ala., Bir. fur., local del.	12.00 to 13.00
Alabama, del. Chicago	17.01
Alabama, del. St. Louis	15.42
Alabama, del. Cincinnati	14.69 to 15.19
Ala., Phila., dock del.	16.25
Ala., Balt., dock del.	16.00
Alabama, New York dock	16.50
Ala., Boston dock del.	16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	14.69 to 15.19
Montreal, delivered	23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	17.50
Buff., all-rail, Brooklyn	20.91 to 21.41
Buffalo, all-rail Newark	18.78 to 19.28
Buffalo, del. Boston	21.91 to 22.41
Virginia furnace	18.25
Eastern, del. Phila.	17.76

FOUNDRY, NO. 1X

Buffalo fur., local del.	18.50
Eastern, del. Phila.	18.26

MALLEABLE

Valley furnace	17.00
Cleveland fur., local del.	17.00
Pittsburgh dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Chicago, furnace	17.50
Buffalo fur., local del.	17.50
Eastern Penna., delivered	18.26 to 20.91
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	16.00 to 16.50
Pittsburgh, delivered	16.63 to 17.63
Eastern Penn., del.	17.00
Buffalo fur., local del.	16.50 to 17.00
Montreal, delivered	20.50
Valley, furnace	17.00

BESSEMER

Valley furnace	17.00
Pittsburgh, delivered	18.13 to 18.63
Pittsburgh, furnace	17.50

LOW PHOS.

Valley fur., standard	27.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	22.50 to 23.00

GRAY FORGE

Valley furnace	16.50
Pittsburgh district fur.	17.00
Pittsburgh, delivered	17.63 to 18.13

CHARCOAL

Lake Superior, del. Chi.	27.04

SILVERY

Jackson County, O., fur., in per cents 6—$21; 7—$21.50; 8—$22; 9—$22.50; 10—$23; 11—$24; 12—$25; 13—$27.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents 10—$25; 11—$26; 12—$27; 13—$29; 14—$31; 15—$26; 16—$35.

Coke

Prices Per Net Tons

Beehive Ovens

Connellsville furnace	$2.40 to 2.50
Connellsville foundry	3.25 to 4.50
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.70 to 9.10
Chicago, ovens	7.50
New England, del.	10.50
St. Louis, del.	8.50
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens, Connell., basis	5.50
Buffalo, ovens	8.00 to 8.50
Detroit, ovens	8.00
Philadelphia, del.	8.75

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	10.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% manganese	10.00
North African low phosphorus	8.50
Swedish basic, 65%	9.00
Swedish low phos.	10.00
Spanish, North African basic, 50 to 60%	8.50 to 9.00
Newfoundland fdy., 55%	8.50
Tungsten, spot and future short ton unit, duty paid	$11.25 to $11.50
Chrome ore, 48% net ton c.i.f.	$21.50 to 22.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	26 to 28 cents
South African, 52%	26 to 28 cents
South African, 49-51%	25 to 26 cents
South African, 44-47%	24 cents
Indian, 48-50%	nom.
Brazilian, 46-48% (nom.)	22 cents

Refractories

FIRE CLAY BRICK

1'er 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	$40.00
Georgia, Alabama	40.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	35.00
Georgia, Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	40.00
Joliet, Ill., East Chicago, Ind.	49.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$65.00

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	40.00
Domes, Chewelah, Wash., base	22.00

CHROME BRICK

Net ton, Chester, Pa., and Baltimore base, 9 x 4½ x 2½	45.00

Semifinished Steel

PRICES PER GROSS TON

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$29.00 to 30.00
Pittsburgh, bessemer	29.00 to 30.00
Youngstown	29.00
Cleveland	29.00
Philadelphia	34.30
Chicago	30.00
Forging, Chicago	35.00 to 36.00
Forging, Pittsburgh	35.00 to 36.00
Forging, Philadelphia	40.30

SHEET BARS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00
Chicago	30.00

SLABS

Pittsburgh	29.00 to 30.00
Youngstown	29.00
Cleveland	29.00

WIRE RODS

Pittsburgh, Cleveland	35.00
Chicago	36.00

SKELP

All grades, Pittsburgh	1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$85.00
*Ferromanganese, del. Pittsburgh	89.79
Spiegeleisen, 19-20%, domestic fur. spot†	30.00
Ferrosilicon, 50 per cent, freight all., c. l.	83.50
Do, less carload	88.50
Do, 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb., con., del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	150.00
Do, one-ton to c. l.	170.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50

†Carloads. Differentials apply to large quantities.

*To users of carloads to 500 tons annually. Differentials apply to users of larger quantities.

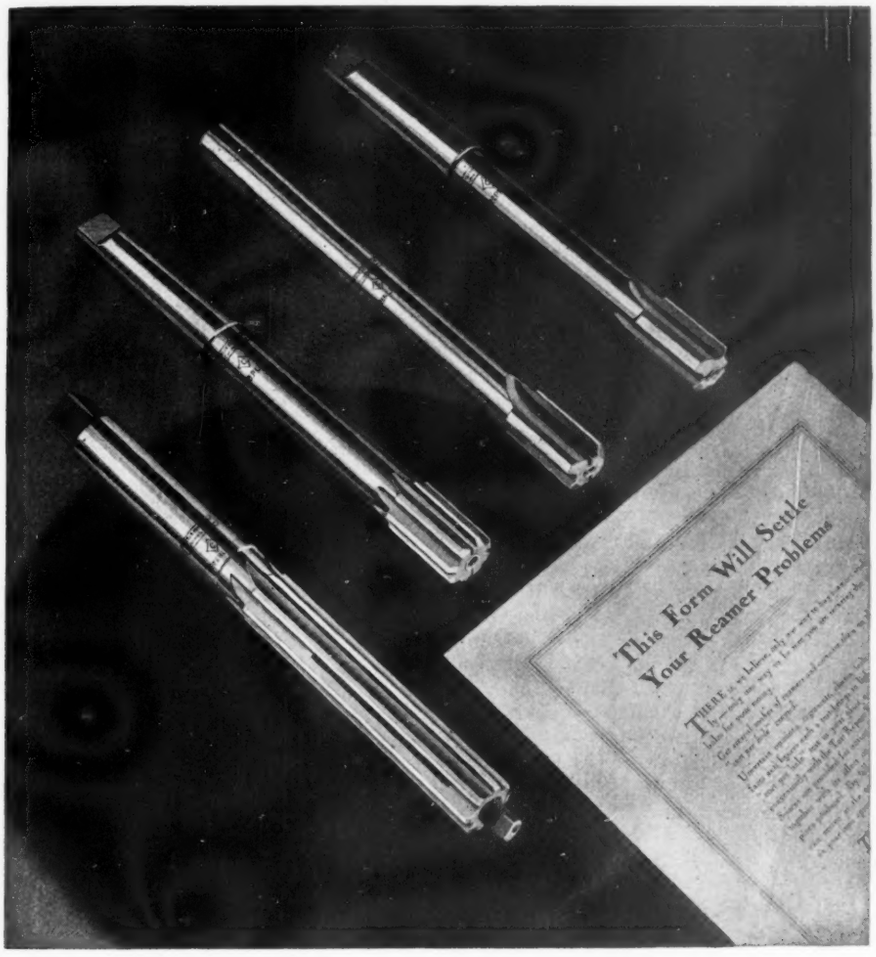
Fluorspar

85 and 5 per cent grade

Washed gravel Kentucky and Illinois mines, per net ton	$13.50 to 14.00
Washed gravel, import duty paid east, tide, gross ton	18.50 to 19.00

Be the first in your plant to discover this saving . . .

Scores of alert men in shops and purchasing departments have seen the opportunity to gain the added goodwill of the firm by making a "cost-per-hole" test on reamers. They have discovered important new facts about the widely varying performance of different reamers *on the same job.* Many have reduced reamer costs 85 and 80% simply by making known the reamer with the lowest cost-per-hole record, as revealed by their test. If your shop is not using "Peerless" High Speed Reamers, you may be able to show equal



savings. Will you be the first in your plant to make this sensible and practical test? Send for the test forms and necessary instructions. They cost you nothing — obligate you in no way. See the coupon below.

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Rush me "Cost-per-Hole" Reamer test forms and instructions for their use.

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Company Name _____

Address _____

Pig Iron

June Shipments Below May Rate—Buffalo Sales for Eastern Delivery Heavy—Prices Steady

PIG IRON PRICES, PAGE 80

Pittsburgh—Buying of pig iron has dwindled to small proportions, the prospective decline of consumers' operations in July restricting business to occasional carloads for prompt needs. Shipments aso are off slightly from the May rate. Prices are receiving no test and are largely nominal at $17, base, valley, for No. 2 foundry, malleable, basic and bessemer.

Boston—Pig iron sales in the past week aggregated 1000 tons, of which 250 tons was No. 2X, purchased by the Hyde Windlass Co., Bath, Me., from a Buffalo furnace. Some Indian iron was sold. Inquiries are light.

New York—Pig iron is more active, approximately 5000 tons being placed here during the week, not including 3000 tons for the Thatcher Furnace Co., on which action is expected momentarily. The Worthington Pump & Machinery Corp. placed 300 tons of No. 2 plain and No. 2X for Harrison, N. J., and Holyoke, Mass. plants. Prices are steady.

Philadelphia—The navy will open bids July 7 on 224 tons of low phosphorus iron for Washington, and 200 to 300 tons of foundry iron for other yards. The market generally is quiet, and prices are unchanged, with eastern Pennsylvania foundry $17.26, Philadelphia.

Youngstown, O.—Small purchases of pig iron continue to be made. No. 2 foundry, basic, malleable, and bessemer brings $17.00, valley furnace, while standard copper free low phosphorus continues $27, valley furnace.

Buffalo—Sales here in the past week totaled 7000 to 10,000 tons. One inquiry for 1000 tons of malleable for eastern delivery was covered some of the business being placed here. The buying established a new base of $15.50 as an open quotation by Buffalo furnaces on larger-eastern inquiry, instead of $16. District business also has improved, the price holding steady at $17. Pending inquiry exceeds 5000 tons.

Cleveland—The Westinghouse Electric & Mfg. Co. has closed for third and fourth quarter requirements at Cleveland, and also is understood to have arranged for its needs at Trafford City, Pa. Its inquiry was pending for more than a month. The order for Cleveland was divided between two Cleveland furnace interests, and in both instances it is reported the prevailing price of $17, base, furnace, applied. Melters generally are not committing themselves for third quarter, indicating they will purchase as needs arise. Furnace companies with headquarters at Cleveland booked 10,000 tons in the past week. Lake furnaces hold to $16 to $17, base, in competitive territory in Ohio and Indiana and $17 to 17.50 in Michigan.

Cincinnati—The pig iron market here is dull, with the melt showing no improvement, and interest in third quarter lacking. An Ohio melter bought 300 tons of northern foundry iron. Quotations are unchanged.

Chicago—Several foundries with bookings in sight for August have started negotiations for moderate orders of pig iron. The melt in this district is at about 25 to 30 per cent. June shipments are below those of May. Lower shipments for July are indicated. About 500 tons of southern iron is being figured.

St. Louis—Demand for pig iron continues quiet. Contracting for third quarter is the smallest on record for this time in more than two decades. It becomes more evident that the next few months will witness continuance of hand-to-mouth purchasing. Prices remain unchanged at $15.42 for southern iron, delivered in this district, and $17.50, base, furnace, for the northern product.

Birmingham, Ala.—New business is light but shipments are slightly more active. Pipe manufacturers indicate they will make some purchases.

Toronto, Ont.—Sales of merchant pig iron have dropped to the year's low level. Melters are adhering strictly to a hand-to-mouth buying policy and producers state there is no covering for third quarter.

Ferroalloy Shipments Slower; Prices Steady

Ferroalloy Prices, Page 80

New York—Shipments of ferromanganese continue to decline, reflecting a further drop in steelmaking operations. Prices are nominally $85, duty paid, for material in carlots. Much the same situation prevails in domestic spiegeleisen, with prices untested at $35, furnace, 19 to 21 per cent.

Special ferroalloy prices and demand are unchanged.

Pittsburgh—Activity in the ferroalloy market continues to decline slowly, shipments being smaller than during preceding months while spot orders are few and call for only small lots. Ferromanganese continues $89.70, delivered, with spiegeleisen $30, furnace, on small tonnages. Ferrotungsten holds around $1.05.

Iron Ore Consumption Slower; Market Quiet

Iron Ore Prices, Page 80

Cleveland—The market for Lake Superior iron ore is quiet. Contracts have been closed for the season and no open-market business is appearing. The Lake Superior Iron Ore association reports as follows on ore consumption and supplies on hand:

	Tons
Ore consumed in April	2,825,647
Ore consumed in May	2,674,758
Decrease in May	150,889
Ore consumed in May, 1930	4,715,379
Ore at furnaces June 1, 1931	21,967,645
Ore on Lake Erie docks June 1, 1931	5,147,102
Total at furnaces and Lake Erie docks June 1, 1931	27,114,747
Total June 1, 1930	21,324,837

Semifinished Steel Demand Continues Light

Semifinished Prices, Page 80

Pittsburgh — Semifinished steel shipments and new business continue light but are little changed. Some producers continue to quote $30 for rerolling billets, slabs and sheet bars but others are naming $29, which is the usual market. Wire rods remain $35. Consumers show little interest in contracting and are placing small orders as the occasion warrants.

Philadelphia—The market for billets is quiet and unchanged at $29, Pittsburgh, for rerollers and $35 for forging quality.

Youngstown, O.—Long before this date in busy industrial seasons, contracts would have been placed or renewed by users of semifinished material for third quarter. At this time there is no sign of activity in billets, sheet bars or slabs; nonintegrated users apparently are convinced they can procure supplies of these commodities at any time required and at the unchanged price of $29, Youngstown or Cleveland.

Scrap

Prices Hold Against Pressure—Bottom Seems Definitely Reached—Pittsburgh Steel Up

Chicago—While scrap is not making perceptible gains in strength, the market appears poised for an upturn in several grades. Dealers and yards holding scrap are offering material much less freely. Desire to sell at existing prices is lacking, as stiff resistance to further declines has developed. Uncertainty as to the extent of the probable freight rate advance is reflected in hesitancy to sell. Some dealers even are asking higher price for quick delivery. Prospects for earlier buying are not such as ordinarily would justify a strengthening market, but it is felt that prices recently have been squeezed below their proportionate level, even considering the slow demand. Shipments have been further reduced the last few days. Heavy

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	$8.00 to $9.00
Boston, dealers	4.00 to 4.10
Buffalo, No. 1	9.00 to 9.50
Buffalo, No. 2	7.50 to 8.00
Chicago	**8.50 to 9.00**
Cinn., deal.	7.50 to 8.00
Cleve., No. 1	8.50 to 9.00
Cleve., No. 2	8.00 to 8.25
Det., No. 1 deal.	7.25 to 7.75
Det., No. 2 deal	**6.00 to 6.50**
E. Pa. del. mill	8.00 to 9.00
N. Y. deal. R. R.	4.50 to 6.50
N. Y. deal. No. 2	3.50 to 4.00
N. Y. deal. yd.	4.00 to 4.50
Pitts., No. 1	10.00 to 10.50
St. L. No. 1 sel	8.25 to 8.75
Federal, Ill.	**8.00 to 8.50**
Granite City, Ill.	7.00 to 7.50
Valleys, No. 1	**10.00 to 10.50**

COMPRESSED SHEETS

Buffalo, dealers	7.50 to 8.00
Chicago	**7.00 to 7.50**
Cleveland	7.50 to 8.00
Detroit, dealers	6.75 to 7.25
E. Pa. new mat	8.00 to 9.00
Pittsburgh	9.50 to 10.00
Valleys	9.50 to 10.00

BUNDLED SHEETS

Buffalo	5.50 to 6.00
Cinci., deal.	6.75 to 7.25
Cleveland	6.50 to 7.00
Eastern Pa.	**7.50 to 8.00**
Pittsburgh	8.00 to 8.50
St. Louis	**5.50 to 6.00**

SHEET CLIPPINGS LOOSE

Chicago	**4.00 to 4.50**
Cincinnati	4.00 to 4.50
Detroit, dealers	4.00 to 4.50
St. Louis	**5.50 to 6.00**

STEEL RAILS SHORT

Birmingham	11.00 to 11.25
Boston, dealers	3.00 to 4.10
Buffalo	12.00 to 12.50
Chicago (3 ft.)	10.00 to 10.50
Chicago (2 ft.)	10.75 to 11.25
Cinci., deal.	**13.00 to 13.50**
Detroit, deal.	11.00 to 11.50
Pitts. (open-hearth, 3 ft. and less)	12.50 to 13.00
St. Louis	**12.00 to 12.50**

STOVE PLATE

Birmingham	7.00 to 7.50
Boston, con.	5.00 to 5.50
Buffalo	7.50 to 8.00
Chicago, net	**7.00 to 7.50**
Cinci., deal. net	**4.50 to 5.00**
Det., net deal.	4.00 to 4.50
Eastern Pa.	**7.50 to 8.00**
N. Y., deal. mill	4.00 to 4.50
St. Louis	7.00 to 7.50

COUPLERS, SPRINGS

Buffalo	12.00 to 12.50
Chicago	10.00 to 10.50
Eastern Pa.	**13.00**
Pittsburgh	12.50 to 13.00
St. Louis	**8.75 to 9.25**

ANGLE BARS—STEEL

Chicago	9.75 to 10.25
St. Louis	8.25 to 8.75

LOW PHOSPHORUS

Buffalo, billets and bloom crops	14.00 to 14.50
Cleveland bil. and bloom crops	12.00 to 12.50
Eastern Pa.	13.50 to 14.00
Pittsburgh billet bloom crops	14.00 to 14.50
Pitts. sheet bar crops	13.00 to 13.50

FROGS, SWITCHES

Chicago	8.50 to 9.00
St. Louis	9.50 to 10.00

SHOVELING STEEL

Chicago	8.50 to 9.00
Cleveland	6.25 to 6.75
St. Louis	8.00 to 8.50

RAILROAD WROUGHT

Birmingham	**8.00 to 8.50**
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	7.50 to 8.00
Buffalo, No. 2	9.00 to 9.50
Chicago, No. 1	**8.25 to 8.70**
Chicago, No. 2	**8.50 to 9.00**
Cinci., No. 2	7.50 to 8.00
Eastern Pa.	10.00
N. Y., No. 1, deal.	**9.00 to 9.50**
Pitts., No. 2	10.00 to 10.50
St. Louis, No. 1	5.25 to 5.75
St. Louis, No. 2	**8.00 to 8.50**

SPECIFICATION PIPE

Boston	**5.00 to 5.25**
Eastern Pa.	10.00 to 10.50
N. Y., deal	**6.00 to 6.50**

BUSHELING

Buffalo, No. 1	7.50 to 8.00
Chicago, No. 1	7.00 to 7.50
Cinn., No. 1 dl	6.00 to 6.50
Cinn., No. 2	3.50 to 4.00
Cleve., No. 2	**6.00 to 6.50**
Det., No. 1 new deal.	5.50 to 6.00
St. L., No. 1	6.00 to 6.50
Val. new No. 1	9.00 to 9.50

MACHINE TURNINGS

Birmingham	4.50 to 5.00
Boston, dealers	0.60 to 1.00
Buffalo	4.75 to 5.00
Chicago	3.50 to 4.00
Cinn., deal.	3.75 to 4.25
Cleveland	5.25 to 5.50
Detroit	**3.00 to 3.50**
Eastern Pa.	5.00 to 6.00
N. Y., deal.	2.00
Pittsburgh	**6.50 to 7.00**
St. Louis	**3.50 to 4.00**
Valleys	6.00 to 6.50

BORINGS AND TURNINGS
For Blast Furnace Use

Boston	0.50 to 0.80
Buffalo	5.75 to 6.25
Cinn., deal.	3.75 to 4.25
Cleveland	6.25 to 6.75
Detroit, deal.	3.50 to 4.00
Eastern Pa.	5.50
N Y., deal.	2.00
Pittsburgh	6.75 to 7.25

CAST IRON BORINGS

Birming., chem.	**12.50 to 13.00**
Birming., plain	4.50 to 5.00
Boston, chem.	7.00 to 7.25
Boston, deal.	0.60 to 1.00
Buffalo	5.75 to 6.25
Chicago	**3.50 to 4.00**
Cinn., deal.	3.75 to 4.25
Cleveland	6.25 to 6.75
Detroit, deal.	**3.50 to 4.00**
Eastern Pa.	**5.00 to 6.00**
E. Pa., chem.	11.50 to 12.50
N. Y., deal.	2.00 to 2.50
Pittsburgh	**6.75 to 7.25**
St. Louis	**5.00 to 5.50**

PIPE AND FLUES

Cinn., deal.	6.00 to 6.50

RAILROAD GRATE BARS

Buffalo	6.50 to 7.00
Chicago, net	6.00 to 6.50
Cincinnati	5.50 to 6.00
Eastern Pa.	7.50 to 8.00
N. Y., deal.	5.00 to 5.50
St. Louis	6.00 to 6.50

FORGE FLASHINGS

Boston, deal.	5.00 to 5.25
Buffalo	7.50 to 8.00
Cleve. ov. 10 in.	6.50 to 7.00
Detroit	5.75 to 6.25

FORGE SCRAP

Boston, del.	5.00 to 5.25
Chicago	11.50 to 12.00
Eastern Pa.	9.00 to 10.00

ARCH BARS, TRANSOMS

Chicago, net	10.50 to 11.00
St. Louis	8.25 to 8.75

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	8.00 to 8.50
Chi., steelworks	7.50 to 8.00
Cleveland	6.75 to 7.00
Eastern Pa.	8.00 to 9.00
Pittsburgh	8.75 to 9.25
St. Louis	7.00 to 7.50

STEEL CAR AXLES

Birmingham	12.50 to 13.00
Boston, ship. pt.	11.00 to 12.00
Buffalo	15.50 to 16.00
Chicago	12.90 to 13.45
Eastern Pa.	18.50 to 19.50
St. Louis	13.00 to 13.50

SHAFTING

Bos., ship. pt.	10.00 to 10.50
Chicago	9.55 to 10.10
N Y., deal.	12.00 to 13.00
St. Louis	9.50 to 10.00
E. Penna.	18.00

CAR WHEELS

Birming., iron	8.00 to 9.00
Boston, iron	14.00 to 14.50
Buffalo, iron	10.75 to 11.25
Buffalo, steel	11.75 to 12.25
Chicago, iron	10.00 to 10.50
Chi. rolled steel	11.00 to 11.50
Cincinnati, iron	10.50 to 11.00
E. Pa. steel	12.00
E. Pa. iron	**12.50 to 13.00**
Pitts. iron	10.50 to 11.00
Pitts., steel	12.50 to 13.00
St. Louis, iron	7.75 to 8.25
St. Louis, steel	**10.00 to 10.50**

NO. 1 CAST SCRAP

Birmingham	10.00 to 10.25
Buffalo (mach.)	9.00 to 10.00
Boston, textile	10.00 to 10.50
Chicago, mach.	9.80 to 10.35
Chi., railroad	8.70 to 9.25
Chicago, agri.	8.40 to 8.95
Cinn., mach. cup, gross	**12.25 to 12.75**
Cleve. cupola	10.00 to 10.50
Det., net deal.	8.00 to 8.50
E. Pa. cupola	**12.50 to 13.00**
N. Y. cup. deal.	7.00 to 7.50
N. Y., del. local foundries	**12.00**
Pitts., cupola	10.00 to 10.50
San Fran., del.	13.50 to 14.00
Seattle	7.50 to 8.00
St. L. No. 1 ma	9.00 to 9.50
St. L. No. 1	8.25 to 8.75

HEAVY CAST

Boston	**10.50 to 11.00**
Bos. mach. cast	11.50 to 12.50
Buffalo, break	6.50 to 7.00
Cleve., break	6.50 to 7.00
Detroit, auto, net deal.	**10.50 to 11.00**
Det., break., dl	5.50 to 6.00
Eastern Pa.	10.00 to 11.00
N. Y. No. 1 dl	7.00 to 7.50
N. Y. break. dl	6.00 to 6.50
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston R. R.	**13.00 to 13.50**
Buffalo	10.00 to 10.50
Chicago, agri.	**9.00 to 9.50**
Chicago, R. R.	9.50 to 10.00
Cinn., R. R. dl	**11.00 to 11.50**
Cinn., agri., dl.	10.00 to 10.50
Cleveland, rail	10.00 to 10.50
Det. auto deal.	**10.50 to 11.00**
St. Louis, rail	**8.00 to 8.50**

RAILS FOR ROLLING
5 feet and over

Birmingham	10.50 to 11.00
Boston	**7.50 to 8.00**
Buffalo	**10.00 to 10.50**
Chicago	10.50 to 11.00
Eastern Pa.	**11.50 to 12.00**
New York	7.00 to 7.50
St. Louis	10.50 to 11.00

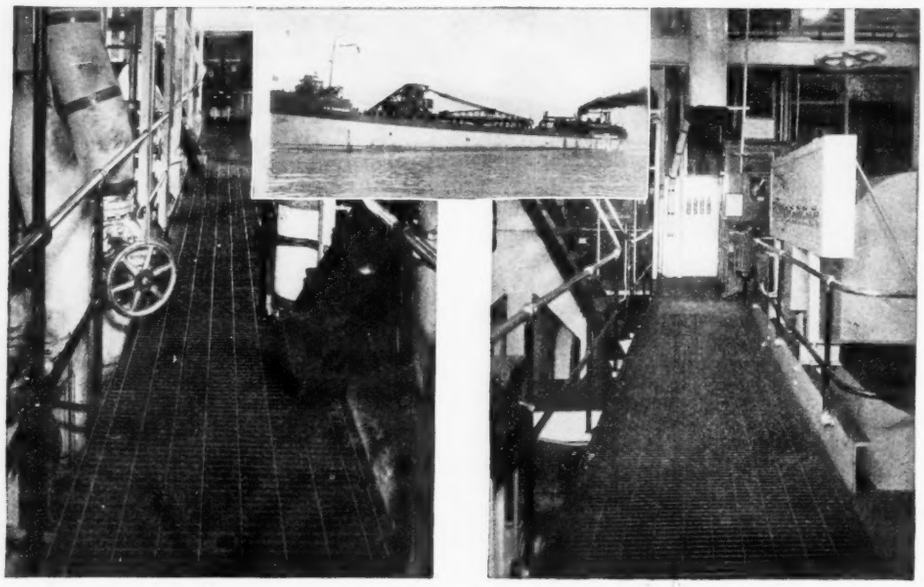
LOCOMOTIVE TIRES

Chicago, cut	11.50 to 12.00
St. L., No. 1	**10.50 to 11.00**

LOW PHOS. PUNCHINGS

Chicago	10.75 to 11.25
Buffalo	13.00 to 13.50
Eastern Pa.	13.00 to 14.00
Pittsburgh	13.50 to 14.00

On the Largest Turbo-Electric Dredge . . .



Two views of part of the installation of Mitco Interlocked Steel Grating on the turbine motorship, "J. R. Sensibar".

MITCO INTERLOCKED STEEL GRATING

AS A bulk freighter, this 10,000-ton ship was just another freighter. Converted into the mechanical self-unloader, "J. R. Sensibar", she is now the largest turbo-electric dredge on the Great Lakes . . . probably in the world. She is owned by Construction Materials Corporation of Chicago, largest producers of sand in this country.

In the conversion, Mitco Interlocked Steel Grating was installed on the "J. R. Sensibar" wherever open steel flooring was required.

In flooring, platforms, walkways and other under-foot surfaces on marine equipment . . . as in engineering and construction work of every type . . . Mitco Interlocked Steel Grating provides a self-draining, non-slipping and non-clogging flooring of high strength and rigidity. Its 90% open area allows passage of the maximum light and ventilation from level to level.

Complete data on Mitco, the grating with every advantage, is contained in the Mitco bulletin. May we send you a copy?

HENDRICK MITCO ARMORGRIDS

To avoid continual crack-outs and excessive maintenance in concrete or cement floors, platforms, ramps or driveways, armor with Mitco Armorgrids. They give a rail-like steel surface that bears the brunt of shocks and wear. Cracking, potholes and depressions cannot develop. Write for bulletin.

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Baltimore, Md.; Birmingham, Ala.; Boston, Mass.; Charleston, W. Va.; Chicago, Ill.; Cleveland, Ohio; Detroit, Mich.; Erie, Pa.; Hazleton, Pa.; Houston, Tex.; Indianapolis, Ind.; Los Angeles, Cal.; Montreal, Can.; Philadelphia, Pa.; Pittsburgh, Pa.; San Francisco, Cal.; Seattle, Wash.; Tulsa, Okla.

Makers of Mitco Shur-Site Treads, Hendrick Perforated Metal Screens and Elevator Buckets, Hendrick Perforated Metal Grilles, and Light and Heavy Steel Plate Construction

HENDRICK MITCO GRATING

The Grating With Every Advantage

High Strength—Permanent Rigidity—Non-Slipping, Non-Clogging Surface—Maximum Light and Ventilation

melting steel is nominal at $8.50 to $9.00. St. Paul railroad released two small lists, and an offering has been sold by the Burlington. Melting steel on these lists sold at $9 to $9.25. Rerolling rails are down 50 cents, and several specialty grades also have receded.

Boston—Prices held firm at their low levels for all lines of scrap during the past week. There is no business to speak of, Worcester continuing to take little heavy melting steel and bundled skeleton, but otherwise conditions are at low ebb.

New York—Scrap trading is dull, with prices easy. The Claymont mill is taking limited shipments of heavy melting steel at $8, delivered. Low buying prices and the general situation in the scrap market has slowed collections. Dealers are not storing large stocks. Movement by barge to the Buffalo district continues with No. 2 being bought for $5.50. Dealers buying prices, although weak, are slightly steadier.

Bethlehem Steel Co. has closed on 3500 tons of No. 1 melting steel at $9 delivered, Lackawanna.

Philadelphia—While steel and iron scrap still is plentiful and most mills have good supplies prices are unchanged. One eastern Pennsylvania consumer of No. 2 steel has been buying scrap consistently for weeks with a view to accumulating a reserve at a low average price and now has the largest accumulation in its history.

Buffalo—Dealers say there has been no sale on new offers of $7.50 for No. 2 heavy melting steel and $9 for No. 1. Supplies have ceased coming here in volume, it is claimed, resulting in the slowest June business in many years. Some stove plate is reported to have been purchased at $8 and some machinery cast, not strictly No. 1, at $9. Otherwise the market is without development.

Cleveland—Iron and steel scrap shows little change. Otis Steel Co. continues to take some blast furnace scrap. A few carlots of specialties are going to foundry consumers. Otherwise activity is at a minimum. Quotations remain unchanged but nominal on most grades. A Youngstown mill has purchased No. 1 steel at $10, delivered. Some scrap is moving to consumers at Youngstown, Canton and Lowellville, O. Valley quotations continue unchanged. A large Cleveland mill is said to be dipping into its reserve scrap stocks but shows no indication of placing fresh orders

Detroit—Unchanged prices on steel and iron scrap reflect the present situation in this market. Present conditions indicate a probable rise in prices shortly as buying is being done by interests out of the market. General belief is that the lowest level has been reached.

Cincinnati—Light buying marks the iron and steel scrap market, with prices nominally unchanged. Dealers indicate resistance to further lowering in quotations.

St. Louis.—The feeling in iron and steel scrap has undergone distinct change for the better during the past week or ten days. More orders have appeared than in some while, and improvement during the past week prices are steady to higher. Iron car axles, frogs and guard rails and miscellaneous rails were marked up 50 cents per ton. Under improved demand and smaller offerings, rails for rolling were advanced fractionally, the first upward movement in this grade for several months.

Pittsburgh—A firmer tone is manifest in the steel and iron scrap market, although buying is still light. Following a sale of heavy melting steel at $10 a week ago it is regarded unlikely additional material could be bought at this level. One mill placed a small tonnage at $11 but inasmuch as this involved a premium grade the market is quotable no higher than $10.50.

Birmingham, Ala.—The few purchasers in the market are making their own prices on old material.

Toronto, Ont.—New business in steel and iron scrap is confined to small sales. Mills are not placing orders except when some special grade is desired with the result that the movement of heavy melting steel and turnings is almost at a standstill. Iron grades are spotty, with machinery cast still leading. Prices have not been revised by dealers, who state they are out of the market.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axle	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

Coke

Connellsville Foundry Premium Brands Down 25 Cents—Demand for All Grades Slower

COKE PRICES, PAGE 80

Pittsburgh—Coke demand generally is unchanged, but tending downward. Shipments of furnace coke on contracts are fairly steady, but new buying is light, with the market holding at around $2.40 to $2.50. Premium brands of foundry coke have been reduced 25 cents to $4.50. Standard grades continue $3.25 to $3.50.

Boston—Foundries continue to defer coke contract shipments as much as possible. Prices are steady.

New York—Coke sellers here profess to see little improvement in the tone of the market, although admitting that the labor situation in the coal fields may be reflected more forcibly later. Beehive furnace coke is $2 to $2.25, Connellsville, Pa., and standard grades of beehive foundry coke, $3.25, Connellsville, with premium brands, $4.50, ovens, and up, depending upon the specifications. By-product coke is $8.70 to $9.10, Newark, N. J.; $10.50, New England; and $8.75, Philadelphia.

Cincinnati—Shipments of by-product foundry coke are little different than in May. Some contracts for the last half have been renewed.

Chicago—Contracting for by-product foundry coke for last half is fairly brisk, influenced in part by prospective increases in freight rates.

St. Louis—The usual seasonal slump in demand for metallurgical coke has been emphasized by prevailing quiet conditions, and orders are the smallest of any similar period in many years. Contracting for future requirements is almost entirely absent.

Birmingham, Ala.—Shipments are off, foundries requiring little fuel. Interest is noted in forward business, however, with prospects of improvement in third quarter.

Pacific Coast

Reinforcing Bar Awards Bring Heavier Tonnage — Interest Keen in Golden Gate Bridge Tonnage—Cast Pipe Shows Renewed Activity in California but Is Dull in Northwest

San Francisco—(*By Air Mail*)—Although demand, generally, has shown little improvement, a number of reinforcing bar awards were reported and greater activity is noted in the cast iron pipe market. The largest award of the week involved 4000 tons of reinforcing steel bars for the Sixth street viaduct, Los Angeles.

The price structure continues unchanged, but those in close touch with the situation are of the opinion that advances, in most lines, will be named shortly.

Bars, Plates and Shapes

Awards of concrete bars this week aggregated over 5000 tons, the largest weekly total so far this year. Badt-Falk Co. booked 200 tons for a state building at Tehachapi, Calif., and the Soule Steel Co. took 150 tons for a theater in Alameda. An unnamed interest secured 250 tons for an apartment in Los Angeles on Cherokee street. New inquiries include 400 tons for a city hall at Beverly Hills, Calif., and 1500 tons for an ammunition depot at Oahu, T. I. Out-of-stock prices in the San Francisco district remain unchanged at 2.60c, base, on carload lots, while Los Angeles quotations are firm at 2.50c.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
*German	24.25
*Indian	22.00 to 24.00

*C.i.f. duty paid.

Demand for plates continues to be confined to small lots, seldom more than 100 tons. The Pittsburgh-Des Moines Steel Co. booked 125 tons for two steel tank and tower projects, one for Calexico, Calif., and the other for Albuquerque, N. Mex. An unnamed interest secured 100 tons for a submarine training tank at Pearl Harbor. Prices are general at 2.00c, c.i.f.

The only shape award of importance involved 110 tons for a printing building on East Seventh street, Los Angeles, placed with the Consolidated Steel Corp. Bids are being taken on 1500 tons for an ammunition depot at Oahu, T. I. Bids will be opened July 15 on 241 tons for a bridge over the Fresno river near Madera, Calif. New inquiries include 175 tons and 150 tons, for two apartments in San Francisco. Interest continues to center around the outcome of the opening of bids, last week, on 110,000 tons for the Golden Gate bridge. Plain structural material continues to range between 2.05c, and 2.15c, c.i.f.

Other Finished Material

Awards of cast iron pipe were the largest in over three weeks, over 500 tons. Antioch, Calif., placed with an unnamed interest, 108 tons of 4 to 10-inch Class B pipe. The Pacific States Cast Iron Pipe Co. secured 208 tons of 2 to 12-inch Class 150 pipe for Fairfield, Calif. Burbank, Calif., awarded 79 tons of 18-inch Class B pipe to C. G. Claussen & Co., and 158 tons of 6 and 10-inch Class B pipe to the United States Pipe & Foundry Co. New inquiries include 750 tons of 16-inch Class B pipe for Oakland, Calif., bids on which will be opened July 8, and 266 tons of 20 and 24-inch Class B or 150 pipe for Burbank, Calif., bids on which will be opened July 7. The American Cast Iron Pipe Co. was low bidder on 831 tons of 20 and 24-inch Class 100 and 250 pipe for Vallejo, Calif. Bids have been opened on 810 tons for San Bernardino, Calif., on which C. G. Claussen & Co. was low bidder. No award has yet been made on 483 tons and 105 tons of 2-inch pipe, respectively, for Los Angeles and Long Beach.

Midseason Depression Deep

Seattle—Mid-season depression is more pronounced than in normal years in the Pacific Northwest. While the business undertone is hopeful, little improvement is expected before the end of the summer. In the meantime few projects of importance have developed and not many contracts for iron and steel are pending.

Bars, Plates and Shapes

Mill prices are nominally 2.05c for structurals, 2.00c for plates and 2.15c for mercant bars, but there has been insufficient business to test these levels. Demand for reinforcing is at the lowest ebb in several years with the keenest competition. Recent lettings have been small lots, mostly carloads. Western Construction Co., Seattle, is successful bidder for the Albro Place viaduct, Seattle, involving 340 tons of reinforcing. No action has been taken with reference to 1000 tons pending for the Seattle marine hospital. Bids for a reinforced concrete machine shop for the highway commission, Seattle, will be opened July 7.

Plates are in poor demand, no projects involving this material being up for figures at this time.

A few small jobs, calling for 40 or 50 tons of shapes each, have been awarded local fabricating plants, but the outlook is bare for the immediate future. About 150 tons for towers for the Seattle city light, the Albro viaduct and a machine shop for the state highway department at Seattle are pending. Lake Washington Shipyards has the contract for a small tonnage of shapes for Seattle light plant.

Finished Materials

The wholesale jobbing situation remains unsatisfactory. Collapse of prices has reduced volume of buying and eliminated profits. Business does not exceed 50 per cent of normal. There is absolutely no demand for some items and orders are invariably in small lots for quick delivery. Sheets and plates, ordinarily active at this season, are moving only in restricted tonnages.

Seattle has purchased 1000 feet of cable, two 20-inch flanged regulating valves and 100 15-tooth steel pinions.

Pipe Is in Dull State

Inquiry is lacking as municipal requirements have been purchased and industrial demand is small. LaConner, Wash., which opened bids for 241 tons of cast iron and 122 tons of steel pipe will readvertise. American Cast Iron Pipe Co., through its Seattle office, has booked 100 tons of 10 and 12-inch Monocast for Ellensburg and Kirkland, Wash. Tacoma is providing $310,000 for improvements in the water system. Olympia, Wash., will open bids July 7 for a small tonnage of steel pipe, meters and accessories. Three Seattle improvement jobs, bids next month, call for 838 tons of 8, 12 and 20-inch cast iron.

Old Materials

The market has developed further weakness. Local mills are overstocked with scrap and will buy only the best grades at the lowest prices in years. Dealers report they can buy cast iron at $5 per ton, net. Demand is at low ebb and there is no interest.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
⅛	58	44½	⅛	23	5
¼	62	50½	¼	28	11
1—3	64	52½	1—1¼	31	15
			1½—2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7—8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

⅛	55	44½	¼ & ⅜	+13	+48
¼	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7—8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload Discounts, Lap Welded Steel		f. o. b. Pittsburgh Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$35.00 to 36.00
Four-inch, Birmingham .... 39.00 to 40.00
Four-inch, Chicago ..... 45.00 to 47.00
Six to 24-inch, Chicago..... 42.00 to 44.00
Six-inch and over, N. Y..... 34.50 to 36.50
Four-inch, New York ..... 39.50 to 40.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

STEEL BARS

Baltimore	3.00c
Boston	3.265c
Buffalo	3.00c
Chattanooga..	3.10c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	3.00c
Los Ang.	3.40c
New York‡(d)	3.10c
Philadelphia..	2.60c
Pittsburgh	2.60c
Portland	3.15c
San Frans.....	2.40c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.65c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.15c
Chattanooga..	3.10c
Chicago	2.75c
Cincinnati	3.00c
Detroit	3.00c
New York‡(d)	3.10c
Philadelphia..	2.60c
St. Louis	3.00c
Tulsa	3.65c

REINFORC. BARS

Baltimore....2.50c-	3.31c
Boston	3.265c
Buffalo	2.95c
Chattanooga..	3.10c
Cincinnati	3.00c
Cleveland 2.10-	2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl....	2.40c
Los Ang. lcl..	2.70c
New York..2.65c-	3.10c
Phila. 2.40c-	3.00c
Pittsburgh	2.75c
San Fran. cl.	2.30c
San Fran. lcl.	2.50c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.65c
Young. 2.30c-	2.60c

SHAPES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los Ang.	3.40c
New York(d)	3.10c
Philadelphia..	2.50c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.75c

PLATES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles..	3.40c
New York(d)	3.30c
Philadelphia..	2.50c
Phila. floor....	5.10c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	2.75c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.915c
Buffalo	3.50c
Chattanooga..	3.60c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.90c
Los Ang.	3.95c
N. Y. (d)....3.00c-	3.40c
Portland	4.00c
Phila.*†	3.05c
Pitts.** ..2.60c to	2.85c
San Fran.	3.65c
Seattle	3.75c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.95c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.70c
Buffalo	3.70c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.60c
Detroit	3.50c
Los Ang.	4.70c
New York..3.50c-	3.65c
Phila.*†	3.40c
Pitts.**	3.30c
Portland	4.50c
San Fran.	4.15c
Seattle	4.25c
St. Louis	3.80c
St. Paul	3.545c
Tulsa	4.10c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	5.45c
Buffalo	4.10c
Chicago (local del.)	4.35c
Chicago (outside)	4.35-4.60c
Cincinnati	4.25c
Cleveland	4.00c
Detroit	4.00c
Houston	5.40c
Los. Ang.	5.10c
New York....4.00c-	4.10c
Phila.*†	3.85c
Pitts.**	3.90c
Portland	5.00c
San Fran.	4.65c
Seattle	4.75c
St. Louis.....	4.35c
St. Paul	4.23c
Tulsa 4.60c-	4.75c

BANDS

Baltimore	3.50c
Boston 4.015c-	5.00c
Buffalo	3.35c
Chattanooga..	3.30c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter....	3.15c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia..	2.90c
Pittsburgh ..	2.95c
Portland	3.50c
San Fran.	3.75c
Seattle	3.50c
St. Paul	3.75c
Tulsa	3.85c

HOOPS

Baltimore	3.50c
Boston 5.50c-	6.00c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter ..	3.65c
New York	3.75c
Philadelphia..	3.15c
Pittsburgh ..	3.60c
Seattle	4.90c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.85c
Chicago	3.10c
Cincinnati	3.50c
Cleveland	3.10c
Detroit	3.65c
Los Ang. (a)	4.50c
New York	3.40c
Philadelphia*	3.40c
Pittsburgh	3.35c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)....	4.50c
St. Paul (a)..	3.85c
St. Louis	3.35c
Tulsa	4.75c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted.
(a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)..	5.65c
Cincinnati	5.80c
Clev. (b)	5.55c
Detroit	5.40c
Phila. (c).....	4.55c
New York	4.55c

(b)Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d)Minus quant. diff.
‡Domestic bars.
*Plus quantity extras.
**Less than 25 sheets.
*†50 or more bundles.

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James Herringbone Speed Reducers in combination with James Automatic Backstops (they prevent reversal of travel) are *ideal heavy mill drives!*

Shock loads—overloads—24-hour operation—hot, dirty working conditions—service punishment of the most severe kind do not affect their highly efficient operation. Stamina is inbuilt and operating satisfaction guaranteed by their ability to withstand 25 per cent constant overload and 100 per cent momentary overload.

The added values of all parts being made oversize (compare a James specification sheet with that of any other make) and of standard, interchangeable design make them the *ideal heavy mill drives!*

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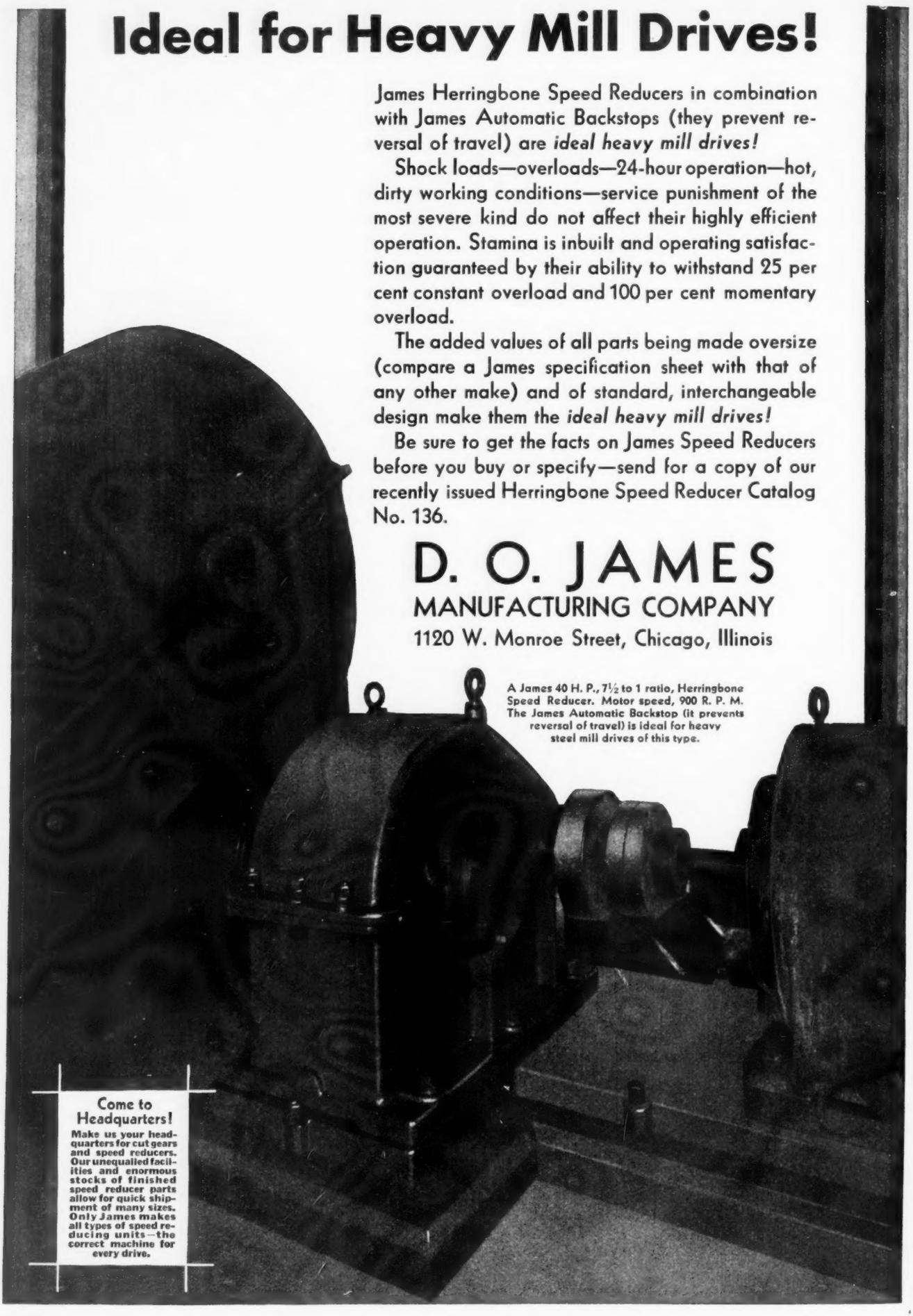
MANUFACTURING COMPANY
1120 W. Monroe Street, Chicago, Illinois



A James 40 H. P., 7½ to 1 ratio, Herringbone Speed Reducer. Motor speed, 900 R. P. M. The James Automatic Backstop (it prevents reversal of travel) is ideal for heavy steel mill drives of this type.

Come to Headquarters!

Make us your headquarters for cut gears and speed reducers. Our unequalled facilities and enormous stocks of finished speed reducer parts allow for quick shipment of many sizes. Only James makes all types of speed reducing units—the correct machine for every drive.

Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 9.00c, Conn., for copper

Sheets	
Yellow brass (high)	16.25
Copper, hot rolled	18.87½
Lead, full sheets (cut ½c more)	8.25
Zinc sheet (100-lb. base)	8.75
Tubes and Pipes	
Seamless yellow brass (high)	21.12½
Seamless copper	21.37½
Rods	
Yellow brass (high, full turnings)	14.50
Naval brass	15.50
Anodes	
Copper, untrimmed	16.37½
Wire	
Yellow brass (high)	16.75

Old Metals

Dealers' buying prices, cents lb.

Heavy Red Brass		
New York	5.25 to	5.50
Chicago	5.00 to	5.50
Cleveland	6.00 to	6.50
St. Louis		5.25
Heavy Yellow Brass		
New York	3.50 to	3.75
Heavy Copper and Wire		
New York	6.50 to	7.00
Boston	6.00 to	6.25
Chicago	5.50 to	6.00
Cleveland	6.00 to	6.50
St. Louis	5.50 to	5.75
Red Brass Borings		
New York	4.75 to	5.00
Yellow Brass Tubing		
Cleveland	3.75 to	4.00
Light Copper		
New York	5.50 to	5.75
Chicago	4.75 to	5.25
Cleveland	5.50 to	6.00
St. Louis		5.25
Light Brass		
Boston	2.75 to	3.00
Chicago	3.00 to	3.50
Cleveland	2.75 to	3.00
St. Louis	3.00 to	3.25
Zinc		
New York	1.25 to	1.50
Cleveland	1.25 to	1.50
St. Louis		1.50
Aluminum		
Clippings, soft, Cleveland	12.00 to	13.00
Clippings, hard, Cleveland	10.00 to	10.50
Borings, Cleveland	4.50 to	5.00
Mixed cast, Cleveland	4.50 to	5.00
Mixed cast, Boston	3.75 to	4.00
Mixed cast, St. Louis		4.00

Secondary Metals

Remelt aluminum No. 12	9.00 to	10.50
Brass ingots, 85-5-5-5		9.12½

Metals

Prices Become Mixed Following Rapid Upturn—Easiness Shown In Copper—Zinc Continues Up

New York—Following one of the most notable turns in the history of the metal market, a mixed situation developed this week with copper and tin displaying signs of easiness, and lead, zinc and antimony continuing strong. Zinc extended its recovery to the highest level in months. Last week, prices rose throughout the list of metals, accompanying a heavy buying movement in copper and lead. This week, buying has tapered off and the reaction in copper and tin, which started abroad, is thought to reflect the inevitable balancing movement.

Copper—Some uncertanty has entered the copper market. Metal was available early this week at 8.75c, delivered Connecticut, and secondhands were reported offering it as low as 8.50c. These prices are in marked contrast to 9.00c, Connecticut, to which the market rose on Monday, the peak of the movement which started a week ago and representing a recovery of a full cent. Copper, brass and related products, such as secondary metal and scrap recovered in line with the upturn in the virgin market. All last week, there was a heavy movement of red metal. This was chiefly in the export trade, however, since domestic demand, while improved, did not respond so enthusiastically to the better feeling which followed publication of President Hoover's debt moratorium plan. Export business during the past 10 days totaled in excess of 37,500 long tons.

Zinc—Consumers did not warm up to the improved feeling in the trade with large and heavy buying. In fact, the response of buyers to the moratorium plan and the stronger markets abroad was comparatively tame. Nevertheless, the general improvement in market sentiment was sufficient to put prices up on a recovery from 3.35c, East St. Louis, to 3.60c at the end of last week. On Monday of this week, it further extended this recovery and on Tuesday went to 3.90c, East St. Louis.

Lead—Heavy buying of lead by all classes of consumers put prices up rapidly in this market. Considerable buying of future metal was done, which possibly may mean that consumers now are carrying heavier stocks. Early this week, the market was holding at 4.22½c, East St. Louis, and 4.40c, New York, although signs of easiness had developed in the London market. Lead products accompanied the rise in the virgin market.

Coke By-Products Output Reduced; Prices Steady

New York—Curtailed output is reflected in limited supply of some distillates, notably benzol and toluol. Industrial demand for benzol is reported as fair.

Toluol buying by lacquer manufacturers holds up well. Xylol shipments are heavier. Naphtha prices are firmer and, while there is talk of advances, distributors are slow to take action. Phenol is slightly more active at unchanged prices. Naphthalene buying is confined to small spot lots. Sulphate of ammonia is dull with prices easy.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.18 to 0.19
90 per cent benzol	0.18 to 0.19
Toluol	0.27 to 0.29
Solvent naphtha	0.24 to 0.25
Commercial xylol	0.24 to 0.25
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.675 to $1.775

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
June 24	8.50	8.62½	8.25	24.15	24.35	4.25	4.07½	3.52½	22.90	6.25	35.00
June 25	8.75	8.87½	8.50	25.35	25.55	4.40	4.22½	3.60	22.90	6.35	35.00
June 26	8.75	8.87½	8.50	25.50	25.80	4.40	4.22½	3.60	22.90	6.50	35.00
June 27	8.75	8.87½	8.50	26.25	26.55	4.40	4.22½	3.72½	22.90	6.50	35.00
June 29	9.00	9.12½	8.75	26.00	26.25	4.40	4.22½	3.85	22.90	7.05	35.00
June 30	8.75	8.87½	8.50	25.00	25.25	4.40	4.22½	3.90	22.90	7.12½	35.00

Europe

Moratorium Suggestion Tending to Strengthen Prices—South Africa Buys Rails in Japan

London—(*By Radio*)—President Hoover's moratorium proposal has brought no immediate change in the British steel situation. In Belgium it is reported to have exerted a strengthening influence on prices, and prices in France also are stronger. Sentiment in Germany has improved, but no tangible results are noted in the market.

The severity of Continental steel competition appears to be abating. Middlesbrough pig iron merchants continue to make concessions for export orders. Galvanized sheets also are being shaded by British producers, and buying has increased slightly. Demand for tin plate is quiet.

Japan's foreign trade efforts seem to be partially successful, the Japanese obtaining an order for 5000 tons of rails from South Africa. Poland has received an order for 25,000 tons of steel from Russia. Portugal has placed a contract with Clyde shipbuilders for four destroyers.

British Mills Have Little Business, at No Profit

Birmingham, Eng.—In the Middlesbrough district the finished steel position shows some improvement, specifications being issued more freely for steel plates. Structural steel departments have a fair volume of work on hand and works producing railroad material are not so badly employed as some other branches. The dearth of shipbuilding orders is responsible for the stagnation among plate rollers. The association meets next month and the question of prices will in all probability be discussed. There is not much prospect of relief to users of British steel. Producers say they are not meeting production costs even at the present basis of prices. Moreover the system of rebates enables the user to purchase his material at little more than he was paying before the war. On the west coast the steel trade is dull. The hoop department is steadily employed and rails are being rolled at Workington.

At Middlesbrough last week over 4000 tons of billets and bars were imported. In the Midland district merchants are not pushing their products so feverishly as a few months ago. They are offering material, however, at low rates, £4 ($19.44) for 2-inch billets and £4 2s 6d ($20.04) for steel bars being typical quotations. These are much below the prices for British steel though the latter are sagging visibly. About £6 7s 6d ($30.97) has been accepted for rerolled bars, while bars rolled from British steel cost £7 ($34.02).

Hematite Bookings Light

In the Middlesbrough market east coast hematite is weak and merchants are offering mixed numbers at £3 3s ($15.30) per ton. Bookings are light, but with contracts on the books makers are disposing of their output. Ironmasters are fixed in their determination not to make any change in the price of No. 3 foundry.

The Midland pig iron position shows no change in recent weeks though in isolated cases there is a feeling that the position is worse. Some Continental iron has still to be delivered to Midland foundries where contracts were made when it was considered that the association was taking advantage by maintaining high prices. It is now agreed that Midland iron is cheap enough to attract any business available and Northampton furnacemen are satisfied they are getting their full share. At the same time they are up against Continental competition in South Wales and in Scotland. The coke market is easy and contracts could be arranged at 11s ($2.67) a ton at the Yorkshire ovens. Spot lots are believed to have changed hands at a lower figure.

In Sheffield the production of openhearth steel remains at probably the lowest level ever recorded. Only about a quarter of the furnaces in the district are in operation. Nobody is disposed to place business for forward delivery. June being a stocktaking month, accentuates the difficulty and hopes are centered on an improvement in July, both in finished and raw materials.

In Scotland the price of pig iron has recently been reduced. Demand is stagnant and output of the six furnaces in blast is more than sufficient for needs of the market.

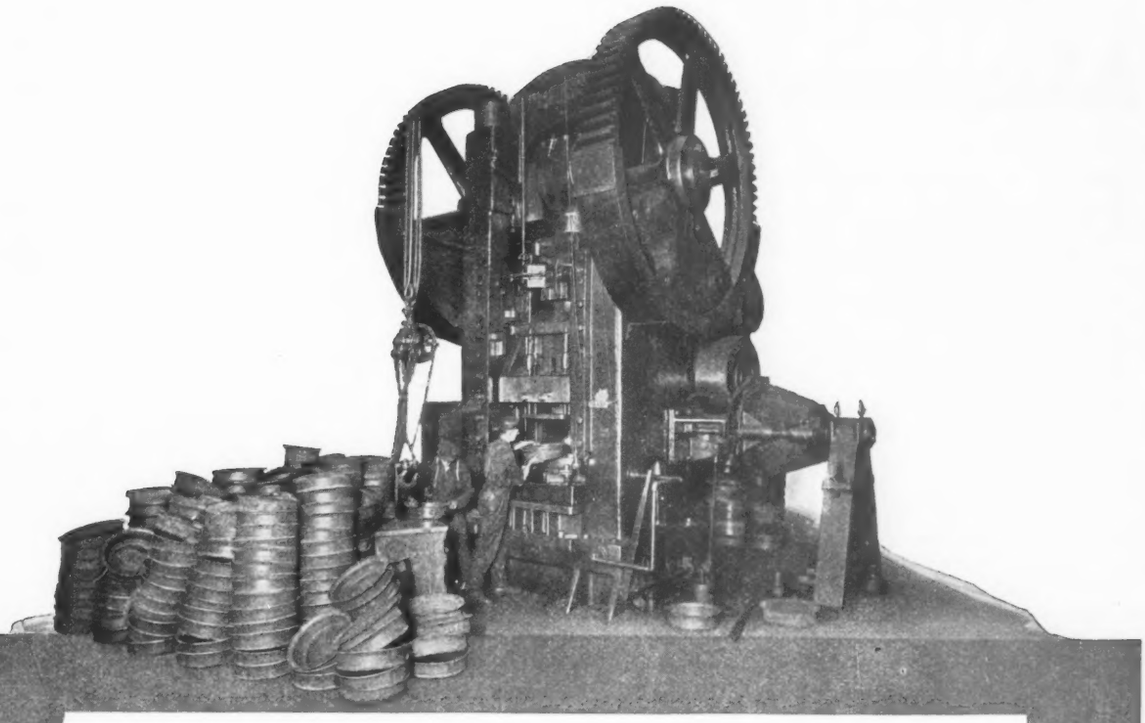
Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, June 29	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f.o.b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3**.....	$14.22	2 18 6*	$11.54	2 7 6	$11.54	2 7 6	$12.15	2 10 0
Basic-bessemer.....	14.58	3 0 0†	11.05	2 5 6	11.05	2 5 6	13.37	2 15 0
Hematite, Phos. .02-.05	15.31	3 3 0	.....	.....	.....	.....	17.01	3 10 0
SEMIFINISHED STEEL								
Billets.....	$25.52	5 5 0	$15.31	3 3 0	$15.31	3 3 0	$15.80	3 5 0
Wire rods.....	41.31	8 10 0	24.30	5 0 0	24.30	5 0 0	24.30	5 0 0
FINISHED STEEL								
Standard rails.....	$40.10	8 5 0	$31.59	6 10 0	$31.59	6 10 0	$31.59	6 10 0
Merchant bars.....	1.52c	7 0 0	.75c	3 8 0	.75c	3 8 0	.75c	3 8 0
Structural shapes.....	1.68c	7 15 0	.73c	3 6 6	.73c	3 6 6	.73c	3 6 0
Plates.....	1.79c	8 5 0	.88c	4 0 0	.88c	4 0 0	.90c	4 2 0
Sheets, black, 24 gage	1.90c	8 15 0	1.76c	8 0 0	1.76c	8 0 0	1.79c	8 2 6
Sheets, gal., 24 ga. corr.	2.12c	9 15 0	2.20c	10 0 0	2.20c	10 0 0	2.31c	10 10 0
Bands and strips.....	2.06c	9 10 0	.91c	4 2 6	.91c	4 2 6	.94c	4 5 0
Plain wire, base.....	2.06c	9 10 0	1.10c	5 0 0	1.10c	5 0 0	1.10c	5 0 0
Galvanized wire, base..	2.39c	11 0 0	1.35c	6 2 6	1.35c	6 2 6	1.38c	6 5 0
Wire nails, base.....	2.39c	11 0 0	1.10c	5 0 0	.....	5 0 0	1.10c	5 0 0
Tin plate, box 108 lb...	$ 3.40	0 14 0	.....	.....	.....	.....	$ 8.26	1 14 0

Domestic Prices at Works or Furnace—Last Reported

				French Francs		Belgian Francs		Renten Marks
Fdy. No. 3 Pig Iron**	$14.22	2 18 6	$11.94	305(2)	$12.79	460	$18.52	78
Basic pig iron.....	14.58	3 0 0	12.71	325(1)	11.54	415	20.30	85.50
Furnace Coke.....	2.92	0 12 0	5.67	145	5.14	185	5.08	21.40
Billets.....	25.52	5 5 0	19.16	490	17.65	635	26.23	110.50
Standard rails.....	1.79c	8 5 0	1.41c	785	1.57c	1,210	1.37c	127
Merchant bars.....	1.63c	7 10 0	.83c	460	.81c	620	1.38c	128
Shapes.....	1.90c	8 15 0	.99c	550	.80c	615	1.35c	125
Plates.....	1.95c	9 0 0‡	1.26c	700	.95c	730	1.59c	147
Sheets, black, 24 gage	1.90c	8 15 0	2.19c	1,215	1.82c	1,400	1.26c	117
Sheets, gal. 24 ga., corr.	2.22c	10 5 0	2.39c	1,325	2.47c	1,900	3.56c	330
Plain wire.....	2.06c	9 10 0	1.98c	1,100	2.08c	1,600	2.24c	207
Bands and strips.....	2.06c	9 10 0	1.10c	610	1.40c	1,075	1.60c	148

*Middlesbrough; †Basic; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 12s 0d ($2.92) f. o. b. Ferromanganese £17 9s 6d ($84.93) delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f. o. b.; **Silicon 2.50-3.00. British quotations are for basic openhearth steel. French, Belgian, Luxemburg, and German are for basic-bessemer steel.



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No. 560

Machinery

FAITH in a favorable effect upon the machinery industry of the probable adoption of the Hoover debt suspension and moratorium proposals has been reflected distinctly by improved sentiment within the industry, as well as by an upswing in machine tool securities. This has done much to prevent an unfavorable reaction to reports of heavy deficits on second quarter operations, accompanied by a rising tide of decisions to pass dividends. Placing of a substantial order for gear grinding machinery by an automobile builder is the sensation of the week in a market which otherwise remains at low ebb.

New York—Except for government buying, machinery and equipment markets are dull. A Hartford, builder, however, is reported to have booked a large order at Buick Motor Car Co. covering gear grinding and other equipment. This is expected to demand full time till October.

June volume with most dealers and builders was about equal to that of May, which was a low month. In common with general industry, the tone of the market is improved, but this has not developed anything like increased business for tools. Inquiry is light and sales are limited to a few individual tools. Some of the largest manufacturing industries are taking no interest in new equipment and the opinion is general that until substantially increased volume reaches these shops, few tools will be bought.

Builders of grinding equipment have booked some fair orders with foreign interests, as well as with domestic automobile companies and several have backlogs which insure moderate operations through the next few weeks. Ball bearing production in southern New England shows little change, although several producers have dropped operating rates slightly.

A Detroit automobile builder has placed additional grinding tools with a New England firm as a result of model changes. Russian buying has slumped but there is a fair volume of other foreign business.

Worcester, Mass.—Outside of the general optimistic market reaction to the Hoover moratorium proposals and widespread belief among machine tool men that acceptance will hasten the resurrection of a badly depressed market, there is nothing to indicate a change in machine tool production.

Aside from the foreign business already booked, manufacturers here have no outstanding inquiry except the government lathe schedules which were noted last week in this report.

Pittsburgh—Machine tool orders offer little encouragement, consisting as they do of occasional purchases of individual items and showing but little change from the recent light volume of total business. Orders placed usually cover equipment urgently needed. Users are slightly more interested in special equipment, but there is no improvement in inquiry for standard tools such as lathes, planers, etc.

Railroad buying is light and although most shops in this district are not modernized to any great extent, tool sellers have little hope for improvement in purchases of the carriers even in the event of favorable action on the proposed rate increase.

Cleveland—Machine tool orders continue to be few and far between, although volume of inquiry again is much more promising. Many of these inquiries emanate from metalworking plants in the East, which is regarded by some experienced machine tool men as a favorable sign. This interpretation is based upon previous experience under similar conditions, when recovery first became noticeable in eastern states, then worked west.

Discouraged by continued deficits, machine tool builders who up until now have maintained dividends, have decided to pass third quarter payments. Nevertheless, cash positions generally are good and certain machine tool securities have swung upward sharply.

Chicago—June is generally accepted as the low month this year in the local machine tool market, despite the placement early in the month of a part of the special equipment order of International Harvester Co., which may amount to $200,000. Several houses note a reduction of 50 per cent from April and May sales. The inquiry of a local steelworks has been postponed, but several items in the Santa Fe railroad list that supposedly were to be cancelled have become active. The road may buy half of the more than 100 tools originally listed.

Other railroad inquiry appears to be delayed because of the application of the carriers for higher rates. Dormant inquiries, such as the St. Paul list, are not likely to become active until the interstate commerce commission acts on the freight rate application. Radio parts manufacturers have been recent buyers of presses and other light production equipment. It is not expected that inquiry from W. C. Grunow Co., radio manufacturer, will be active before autumn. Occasional inquiries develop for used tools. A local buyer is seeking a used turret lathe.

The war department will buy equipment for the Rock Island, Ill., arsenal, including a 10,000-pound portable crane scales. Machine tool and woodworking tools with an inventory value of more than $150,000, comprising stock of the Badger-Packard Machinery Co., Milwaukee, were sold at auction this week.

Exports of Metalworking Machinery

	May		*January through May*	
	1931	1930	1931	1930
Engine lathes	37	254	234	618
Turret lathes	62	57	152	207
Other lathes	74	94	325	371
Vertical boring mills and chucking machines	44	8	139	122
Thread-cutting and automatic screw machines	13	75	91	368
Knee and column type milling machines	13	21	73	159
Other milling machines	36	80	144	376
Gear-cutting machines	86	40	177	193
Vertical drilling machines	33	41	136	295
Radial drilling machines	13	12	67	99
Other drilling machines	89	90	843	972
Planers and shapers	17	49	137	213
Surface grinding machines	10	19	60	130
External cylindrical grinding machines	27	78	118	301
Internal grinding machines	26	28	133	227
Tool grinding, cutter grinding, and universal grinding machines	62	182	396	784
Pneumatic portable tools	894	1938	4848	8976
Chucks for machine tools	828	2778	4189	14468

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

BOSTON—Whitehead Metal Products Co., 69 Washington street, will occupy a 4-story warehouse, 120 x 140 feet, to be built on Northern Artery at a cost approximating $200,000. Contract has been awarded to Norwhit Co., 18 Oliver street, Boston.

WEST CHELMSFORD, MASS.—H. E. Fletcher Co. plans to build a 1-story granite cutting plant, to include a 200-foot craneway. Total cost is estimated at $100,000. Structure, to be erected under the supervision of L. F. Caproni & Co., 1044 Chapel street, New Haven, Conn., will be 75 x 120 feet.

New York

ALEXANDRIA BAY—Plant of the Fitzgerald & Lee Boat Works recently was damaged by fire, with loss estimated at approximately $30,000.

BROOKLYN—Rockaway Operating Co., 421 Seventh avenue, New York, will build a pumping station at Roxbury, Rockaway Point, a suburb. Unit will be 48 x 48 feet. Cost is estimated at $15,000.

BUFFALO—Herkimer Body Works has established operations here, in a plant leased at 184 Herkimer street.

LONG ISLAND CITY—Department of water supply, gas and electricity, municipal building, New York, has let contract to F. S. Pizza Co., Princeton street, Jamaica, L. I., for construction of a shop unit for the First repair company. Approximate cost, $43,000.

NEW YORK—Frederick Steel Corp. has been incorporated with $20,000 capital by S. Metz, 570 Seventh avenue.

NEW YORK—Mohican Steel Co. has been incorporated with 100 common shares by D. Michelson, 271 Madison avenue, to make metal products.

NEW YORK—Zenith Metal Products Inc. has been incorporated with 200 common shares by Moers & Rosenschein, 280 Madison avenue, to make metal products.

New Jersey

ELIZABETH—Consolidated Gas Co. proposes to build a 50 x 75-foot power plant and boiler room at Erie street and Third avenue, at a cost of $40,000. Plans are private.

NEWARK—Steelweld Homes Inc. has been incorporated with $35,000 and 900 common shares by Rupert F. Howlett, 271 Market street, to deal in metal products for builders.

NEWARK—New Jersey state military board, state house, Trenton, N. J., has closed bids for a hangar to be built at Newark airport for the Forty-fourth National Guard. Appropriation of $800,000 has been provided.

Pennsylvania

ERIE—Northwest Electric Construction Co. has been incorporated with $25,000 capital by Clinton Stark, 3848 State street, to manufacture and assemble electrical machinery, parts and appliances.

HAMBURG—Hahn Motors Inc. has been incorporated with $250,000 capital by Adam G. Hahn, Hamburg, and William G. Hahn, Allentown, Pa., to manufacture vehicles, motors, airplanes and parts.

MEADVILLE—Producers Corp. has been incorporated with $25,000 capital by F. H. Rogers, 247 Pine street, and W. W. Sigman, 6611 Darlington road, Pittsburgh, for mining ores, metals and minerals, refining and treating materials and manufacturing products.

PHILADELPHIA—Bureau of supplies and accounts, navy department, Washington, will receive bids July 7 on schedule 5958 for two gas-fired, salt bath furnaces.

PITTSBURGH—Builders Products Co. has been incorporated with $10,000 capital by Howard M. Nichols, 16 Kohala street.

SCOTTDALE — Asphalt Equipment Co. has been incorporated with $5000 capital by W. J. Doorley, to manufacture and sell asphalt mixing machinery and other road machinery and equipment.

SHARON—H. B. Small and associates have purchased the plant of the American Steel Foundries, recently noted as under negotiation. Development of a new industry will be undertaken. Property includes four plant units on a site of 13 acres. (Noted June 25.)

Ohio

CINCINNATI—Plant of the Railway Supply & Mfg. Co., 4851 Spring Grove avenue, recently was damaged by fire. Loss is estimated at $10,000.

CINCINNATI—Sun Oil Co., 1608 Walnut street, Philadelphia, will build a distributing plant here, to include a machine shop. Total cost, with equipment, $400,000.

CLEVELAND—Hotstream Heater Co., 7800 Finney avenue southeast, has leased a plant unit at 9502 Richmond avenue southeast.

CLEVELAND—Schulze Grinding & Polishing Machine Co. Inc. has been incorporated with $5000 capital by Edward C. Schulze, 3358 Lownesdale road.

CLEVELAND—Benhoff Spring & Body Co. has been incorporated with $25,000 capital by C. A. Benhoff, Lorain avenue and West Twenty-eighth street.

CLEVELAND—Skyways Inc., Cleveland municipal airport, has let contract to the Austin Co., 16112 Euclid avenue, for construction of a hangar addition. Expansion of repair facilities is planned.

TOLEDO—Plant of the Toledo Saw & Grinding Co. recently was damaged by fire. Approximate loss, $77,000.

Michigan

DETROIT—Municipal lighting commission will erect a substation. Cost is estimated at $50,000.

DETROIT—Constructing quartermaster, Selfridge field, will receive bids July 16 for construction of a sewage disposal plant, to include pumping and other equipment.

DETROIT—Norge Corp., 7601 Central avenue, is considering an expansion program to double capacity of production. Company manufactures electric refrigerators.

LAPEER—Winn Trailer Corp., 8 Armstrong building, whose organization recently was noted, has been incorporated with $1,000,000 and 100,000 common shares by Sidney B. Winn, R. F. D. No. 1, Joseph Kutter and Henry W. Raymond, to deal in automobile and truck trailers and tractors. (Noted March 12.)

Illinois

CHICAGO—Ozarka Inc., 122 West Austin avenue, proposes to establish a new plant at a cost of about $75,000. Company manufactures radio sets and parts.

DECATUR—Dial Mfg. Co., 128 East Logan street, has been incorporated with $50,000 capital by Joseph P. and Arthur L. Dial and J. W. Montgomery, to manufacture and repair wood and metal.

Southern States

WILMINGTON, DEL.—Thermo Hydraulic Shock Absorber Co. has been incorporated with 10,000 common shares by Corporation Trust Co. to engage in manufacturing.

PALM BEACH, FLA.—Col. M. D. Carmichael will establish a new airport here. Site, 1200 x 2870 feet, has been secured and a hangar unit to accommodate 12 planes wil be erected.

NEW ORLEANS—Southern Animal Trap Co. Inc., F. J. Fortier general manager, proposes to erect a plant unit for increased manufacture of traps, production to reach 40,000 daily. Company

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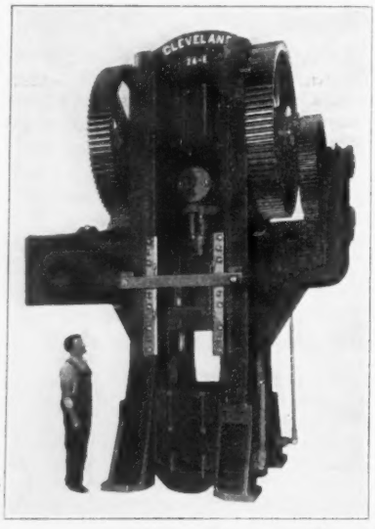
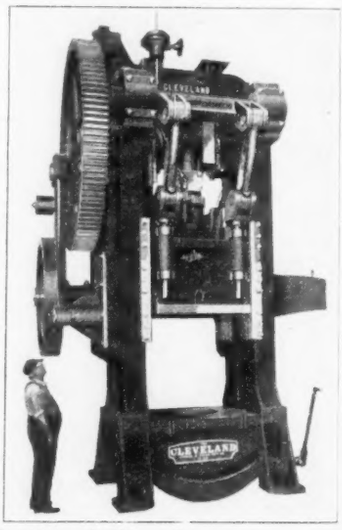
Haws Refractories Co.

Johnstown, Pa.

CLEVELAND POWER PRESSES



MANY manufacturers of pressed metal parts are finding it advantageous to consult with Cleveland Engineers before definitely deciding on new power press equipment, because, Cleveland Engineers have a wide experience in the application of Power Presses and are in a position to make recommendations that result in maximum production with minimum investment. If you are considering the installation of new Power Presses, let us furnish you with our recommendations.



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THE CLEVELAND PUNCH & SHEAR WORKS CO.

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may be addressed temporarily at 138 South White street.

CHARLOTTE, N. C.—United States Refining, Smelting & Mining Co. is reported to have leased a gold mine near here and to plan development of mine properties.

HICKORY, N. C.—Catawba Boat Co. has been incorporated with $500,000 capital by E. A. Ivey to manufacture, repair, deal in and operate boats.

GEORGETOWN, S. C.—City will purchase a diesel engine unit for installation at the municipal light plant, to furnish power to rural lines.

MEMPHIS, TENN.—Milton Bowers Welding Co. has established operations at 358 Madison street. Milton A. Bowers and David W. Owen are members of the firm.

MEMPHIS, TENN.—Memphis Power & Light Co. has let contract to Phoenix Utility Co., box 59, for a 1-story power unit, 23 x 46 feet, to be constructed on Payne avenue. Cost is estimated at $120,000.

NASHVILLE, TENN. — Hutchison Engineering Works, 549 West Washington street, Chicago, has established a plant at Mile End avenue for the manufacture of mechanical devices and tools. Company proposes to expand facilities and install additional equipment. Lawrence Hutchison is local manager.

PARKERSBURG, W. VA.—Engine room and equipment of the Parkersburg Clay Products Co. recently was damaged by fire, with loss estimated at $50,000.

Missouri

JEFFERSON CITY—State highway department proposes to erect a series of 30 maintenance buildings, each 41 x 76 feet. Total cost is estimated at $150,000.

KANSAS CITY—Transcontinental & Western Air Inc., R. W. Dobbins managing director, New York, is reported to plan removal of operating base here. City will erect a 120 x 400-foot hangar unit at a cost of $100,000, to be leased.

Oklahoma

OKLAHOMA CITY—Western Metal Toy Mfg. Co. has been incorporated with $10,000 capital by Ross E. Thomas, Commerce Exchange building.

SUPPLY—State board of affairs, W. C. Hughes chairman, Oklahoma City, proposes to build a power plant at the Oklahoma hospital for insane. Cost is estimated at $85,000.

Texas

OVERTON—City will establish a waterworks system and purchase pumping equipment. Approximate cost, $40,000.

TYLER—Mosher Steel & Machinery Co., 5209 Maple street, Dallas, Tex., proposes to build and equip warehouse units here. Cost is estimated at $50,000.

Wisconsin

LAKE MILLS—Creamery Package Mfg. Co., 1243 West Washington boulevard, Chicago, has let contract to the Austin Co., 16112 Euclid avenue, Cleveland, for a new plant here for the manufacture of dairy machinery and accessories. Structure will be 60 x 154 feet. Cost is estimated at $35,000.

MADISON—United States department of agriculture, Washington, will receive bids July 21 for equipment to be installed in the proposed forest products plant to be erected here. Items will include pumps, pulverizers, compressors, etc. Total cost is estimated at $700,000. Holabird & Root, 333 North Michigan avenue, are architects.

MILWAUKEE—Milwaukee board of harbor commissioners has tentative plans for harbor improvements, to include erection of a transit shed at a cost of $75,000 and erection and electrification of two gantry cranes, $30,000. C. U. Smith is chief engineer.

MILWAUKEE—Industries division of the Milwaukee association of commerce is in contact with O. E. Gill and J. M. Robinson, representing the reorganized Stanley Steamer Co., concerning possible establishment of a plant here. Company manufactures a steam power unit for motor busses and other automotive uses.

PHILLIPS—Windshield Heater Co., manufacturer of automobile accessories, will replace its plant, recently destroyed by fire, with a new building, 46 x 112 feet, at North Lake avenue and Victoria street.

WILLIAMS BAY—F. M. Van Epps, city clerk, will close bids July 9 for construction and equipment of a municipal waterworks plant, pumping station and reservoir. Cost is estimated at $55,000. L. H. Kessler is engineer in charge.

Iowa

BURLINGTON—Citizens Water Co., F. D. Lawler superintendent, has awarded contract to Andy Danielson & Son for construction of a pumping station.

Colorado

LAZEAR—San Juan Sulphur & Chemical Co. is considering plant extensions to handle a large output of sulphur ore. David W. McGee, Aztec, N. Mex., is manager.

Nevada

VIRGINIA CITY—Comstock Tunnel & Drainage Co. is considering erection of a mill building for a flotation process mill, at the Crown Point mine near here.

Pacific Coast

BEVERLEY HILLS, CALIF.—Southern California Edison Co., 306 West Third street, Los Angeles, plans substation extensions here, to cost $150,000.

BREA, CALIF.—Olinda high school district board of education plans construction of a 1-story vocational school, 58 x 106 feet, to include automobile and electric shops. Cost is estimated at $35,000. T. C. Kastner & Co., Architects building, Los Angeles, are architects.

BUELLTON, CALIF.—Midland Counties Power Co. plans to build a substation near here at a cost of about $115,000.

GOLETA, CALIF.—General Western Aero Corp. has let contract to A. J. Roberts, Santa Barbara, Calif. for erection of a plant for the manufacture of airplanes.

OAKLAND, CALIF.—Emeryville high school district has plans, completed by Samuel Arnold, 3499 San Pablo avenue, for a shop unit to cost $10,000.

OAKLAND, CALIF. — Marchant Valve Corp. will start operations at 4053 Hollis street, in Emeryville, a suburb, having completed experimental work on a new type faucet for household and industrial use. R. H. Marchant, of the Marchant Calculating Machine Co., is chairman and general manager of the new company.

PASADENA, CALIF.—City will install a new compressor at the municipal sewage disposal plant. Cost is estimated at $20,000. George K. Hooper is city engineer.

PASADENA, CALIF.—Pasadena junior college is having plans prepared by Frederick Kennedy Jr., 15 South El Molino street, for a shop building to replace a former unit. Estimated cost, $40,000.

SAN FRANCISCO—City council is planning construction of a pipe line over Altamount pass, to connect with the Hetch Hetchy project. Pumping plants with capacity of 45 million gallons per day are involved. M. M. O'Shaughnessy is city engineer.

SAN LUIS OBISPO, CALIF.—H. W. Gould & Co., Mills building, San Francisco, is reported to have secured a lease on the Harmony quicksilver mine near here, and to be considering construction of a rotary furnace plant.

STOCKTON, CALIF.—Stockton city school district is having preliminary plans prepared by J. U. Clowdsley, Exchange building, and Joseph Losekann, 1218 West Harding street, for a vocational school. Cost is estimated at $60,000.

SEATTLE—Wire Rope Mfg. Equipment Co., 322 First avenue south, will rebuild its plant and machine shop, recently damaged by fire.

Dominion of Canada

VICTORIA, B. C.—W. W. Straight, chairman of civic airport committee, is in charge of arrangements for a project at Gordon Head airport. Proposal is to expend $240,000 for acquisition of a 120-acre site and construction of a

hangar, 80 x 85 feet, and a repair shop.

GENEVA STATION, ONT.—Towagmac Exploration Co. will start work immediately on the construction of a differential flotation mill here, to cost $100,000. Alderson & Mackay, 1010 St. Catherine street west, Montreal, Que., are consulting engineers.

LONDON, ONT.—City Gas Co. will make improvements and extensions, to include construction of a gas holder and instaliation of mechanical equipment. Project is to be supervised by company engineers and undertaken by company forces. Total cost is estimated at $1,000,000. W. L. Duffield is general manager.

PORT ARTHUR, ONT.—Coke Ovens & By-Products Co. Ltd., Hamilton, Ont., will establish a gas plant and coking ovens here at an initial cost of $2,000,000, according to P. V. Ibbetson, mayor. C. B. Devlin is local representative of the company.

TORONTO, ONT.—Mack Trucks of Canada Ltd., 1933 Yonge street, will build a new plant unit. A. V. Harburn is general manager.

TORONTO, ONT.—Wrought Iron Range Co. Ltd., 149 King street west, has awarded contract to Holtby Brothers Ltd., 61 Hepburn street, for a plant addition. Cost is estimated at $30,000.

TORONTO, ONT.—Colonial Products Corp. Ltd. has been incorporated with $36,800 and 3200 no par shares by Barton S. Sheldon, 69 Oakwood street, to manufacture and deal in electrical and mechanical refrigeration equipment.

TORONTO, ONT.—Hospital & Kitchen Equipment Co. Ltd. has been incorporated with $40,000 capital by Robert Wheeler, 148 Jane street, to manufacture and deal in sanitary ware, apparatus and equipment.

WALKERVILLE, ONT. — Canadian Piston Ring Co. Ltd. has been incorporated with $40,000 capital by George Willis, 3260 Clement street, Detroit, to manufacture and deal in automobile parts.

WATERLOO, ONT.—Waterloo Industrial Development Co. Ltd. has let contracts in connection with the development of a plant here, to cost $30,000.

SHERBROOKE, QUE.—J. E. Vilander Co. is building a stone crushing plant on Bowen avenue south. Estimated cost, $25,000.

New Trade Publications

WELDING PRESS—A leaflet by the Thompson-Gibb Electric Welding Co., Bay City, Mich., calls attention to details of its new type of welding press for production work.

FURNACES—A bulletin by the Incandescent Heat Co. Ltd., Cornwall road, Smethwick, Birmingham, Eng., covers its line of furnaces and equipment for heat treatment and other uses, pyrometers, chargers and other equipment.

HOBBING MACHINE—O. Zernickow Co., 15 Park Row, New York, has issued a catalog describing the Pfauter high production worm wheel hobbing machine, model S. R. It is illustrated to show the machine and its details.

PEBBLE MILLS—Patterson Foundry & Machine Co., East Liverpool, O., in catalog No. 312 describes its pebble mills for efficient grinding. Illustrations show details of construction and the text describes operation.

SLING CHAINS—Newhall Chain & Iron Co., 9-15 Park Place, New York, has issued a folder illustrating and describing several styles of heavy-duty wrought iron sling chains, hooks, swivels, and fittings.

ALLOY CASTINGS — Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J., has issued a pocket-size chart for corrosion and heat-resisting alloy castings. It contains analyses, physical properties and uses, with other engineering data.

COLLAPSING TAPS—A catalog of its collapsing taps has been compiled by the Geometric Tool Co., New Haven, Conn., covering its standard line and special tools new to the trade. It is illustrated and contains a table of specifications.

CONTROL SYSTEMS—Shallcross Control System Co., Milwaukee, has brought out a looseleaf catalog for filing its new and revised sheets, thus keeping up to date. The data is being revised or added to frequently. Sheets cover the company's entire line.

PULSATION ABSORBER — Meriam Co., 1955 West 112th street, Cleveland, has issued bulletin No. 2, describing its new type of pulsation shock absorber for pressure gages. It is designed to give steady reading on lines subject to pulsations.

TRAMRAIL—Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O., in a current bulletin calls attention to advantages of tramrail equipment in moving material and product through ovens and dryers.

PIPING AND VALVES—Semet-Solvay Engineering Corp., 40 Rector street, New York, in Bulletin No. 44 describes its line of piping and valves. It gives tables of standards, suggestions for efficient planning for new piping and diagrams of operating arrangements for gate valves. It is illustrated with halftones, drawings and charts.

REFRACTORIES—An illustrated booklet on its super-refractories has been issued by the Charles Taylor Sons Co., Cincinnati. The refractories are designed for boiler furnaces, heat treating and forging, crucible, enameling and electric furnaces. Pyrometer protection and glass-house refractories are also described.

SPIRAL WELDED PIPE—American Rolling Mill Co., Middletown, O., has issued a booklet on its spiral welded pipe, containing specific information for users of specially-designed pipe from 6 to 24 inches diameter in various wall thicknesses. It describes the spiral welding process, gives size, weight, pressure and conversion tables.

SHEET IRON—A booklet by the Republic Steel Corp., Youngstown, O., is devoted to the manufacture and uses of sheet iron. It is being issued in its fourth edition. A history of the iron industry from earliest times is a feature. Halftones show the structures in which it has had large use. It describes the steps of modern commercial practice of sheet rolling.

TURBO BLOWER—Centrifugal blowers and compressors are described in an illustrated catalog from Ingersoll-Rand Co., 11 Broadway, New York. Blowers are available for 1 to 40 pounds gage discharge pressure from 3000 to 100,000 cubic feet per minute; compressors up to 110 pounds pressure from 8000 to 10,000 cubic feet. Typical applications are listed.

WELDING ALUMINUM—Welding of aluminum and its alloys is discussed in a recent booklet from the Aluminum Co. of America, Pittsburgh. Procedure in gas and electric methods found most effective for rolled products and casting are outlined as an aid to the practical welder. Examples of industrial work are illustrated. A wall chart of condensed instruction is included.

SPECIAL PROCESS EQUIPMENT—A bulletin by the Babcock & Wilcox Co., 85 Liberty street, New York, is devoted to special process equipment, including riveted and welded pressure vessels, tubular equipment, penstock piping, bends and forgings. Illustrations include various items of this equipment and typical installations. A section is devoted to new welding technique and its results. Production of alloy castings is also discussed.

HEAT TREATING EQUIPMENT—Two bulletins have been issued by Ryan, Scully & Co., Philadelphia, on equipment for heat treating. No. 11 is devoted to its box-type high-temperature electric heating furnace for heat treating, forming and forging, for temperatures up to 2500 degrees Fahr. No. 14 describes electric tempering baths for oil or salt bath mixtures at temperatures up to 800 degrees Fahr. Both are illustrated and contain engineering data.